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April 7, 1949

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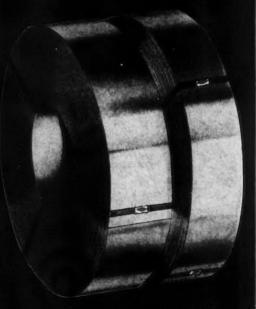
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Papa Knows Better

AVING denied for the better part of two weeks that such action was under consideration, the Federal Reserve Board announced that margins on Stock Exchange purchases would be reduced from 75% to 50%. It should be made clear to the uninitiated that this change does not apply to loans made by the government to private buyers of securities; to any guarantee by the government of loans for the purchase of securities; to any non-recourse support loans based on parity prices for stocks.

It refers to loans made by private lenders to private borrowers for the purchase of securities. The bank, in making the loan, acts entirely on its own responsibility, is fully liable for the risk involved, and places its own appraisal on the security offered as collateral. In other words, it is a transaction between two mature, competent, well-informed parties acting at arms length without duress, restrained on both sides only by competitive factors and business judgment.

Nevertheless, Congress, during a period of national distress and confusion, decided that security loans were affected with the public interest. In 1934 the Federal Reserve Board was given the authority to regulate stock market margins. The premises under which this authority was granted indicated that restraint upon "stock market credit abuse" would prevent speculative excesses, security price inflation, and undue absorption of credit by the stock market. Thus panics of the type that introduced the great depression of 1929-32 would be prevented and the public protected against appalling losses.

These objectives have not been realized. The sharp depression of 1937-38 was ushered in by a typical market collapse. Heavy security losses were sustained. Percentage fluctuations in market value were just as extreme as they had ever been. Not even the simon-pure Fair Dealers in the intellectual entourage of Truman suggest that depressions are caused by stock market loans. Yet no one proposes that a contract made by competent, mature equals, whose terms and effects are of primary concern to the principals involved, shall again become the sole concern of those principals.

The fact is that the government, having invaded a field of private interest under plausible but erroneous assumptions, has no intention of relinquishing its authority. A government which regards betting on horse races with equanimity, which openly tolerates many forms of gambling that have no social or economic value, is determined that men must not take undue risks in the purchase of securities.

Maybe the drop in margin requirements is an official admission that inflation is over. Maybe the FRB is trying to duck responsibility for a crash. Maybe the change is a confession of Washington apprehension over the business outlook. However, of this we can be certain. A Federal bureau never admits that it is wrong. It never willingly surrenders a power once tasted, however unnecessary its continued use may be. As for permitting a banker and security buyer to decide the terms of a loan, a politically-appointed papa always knows better.

Joseph Stagg Lawrence

ENOUGH STEEL?

The Time to Watch Inventories May Be Now

Informed opinion holds that the time may be near when industry must again show caution in the control of steel inventories. In fact, for some types of steel that time has already arrived.

It's all too easy for this important fact to escape notice until too late. Because of abnormal demand the problem of excess steel inventories has been no problem at all for several years. Now there are signs of a change. The situation is still uncertain and some steels remain critical. But when the turn comes, even today's "normal" inventories may loom large.

As warehouse stocks improve, you can safely extend a conservative buying policy over an increasing variety of steel requirements. Warehouse stocks serve as your steel inventory reserve, allowing you

to keep your own inventory at a practical working level. Thus you avoid the continued tie up of capital and minimize the risk of an inventory loss.

The Ryerson organization is particularly well equipped to work with you in keeping your inventory streamlined. Each of thirteen Ryerson plants has large stocks of carbon, alloy, and stainless steels in spite of some unbalance from a size standpoint. Each is served by high speed cutting and handling facilities—and staffed by experienced steel men.

So don't let changes in product design or market conditions catch you with your inventory too high.

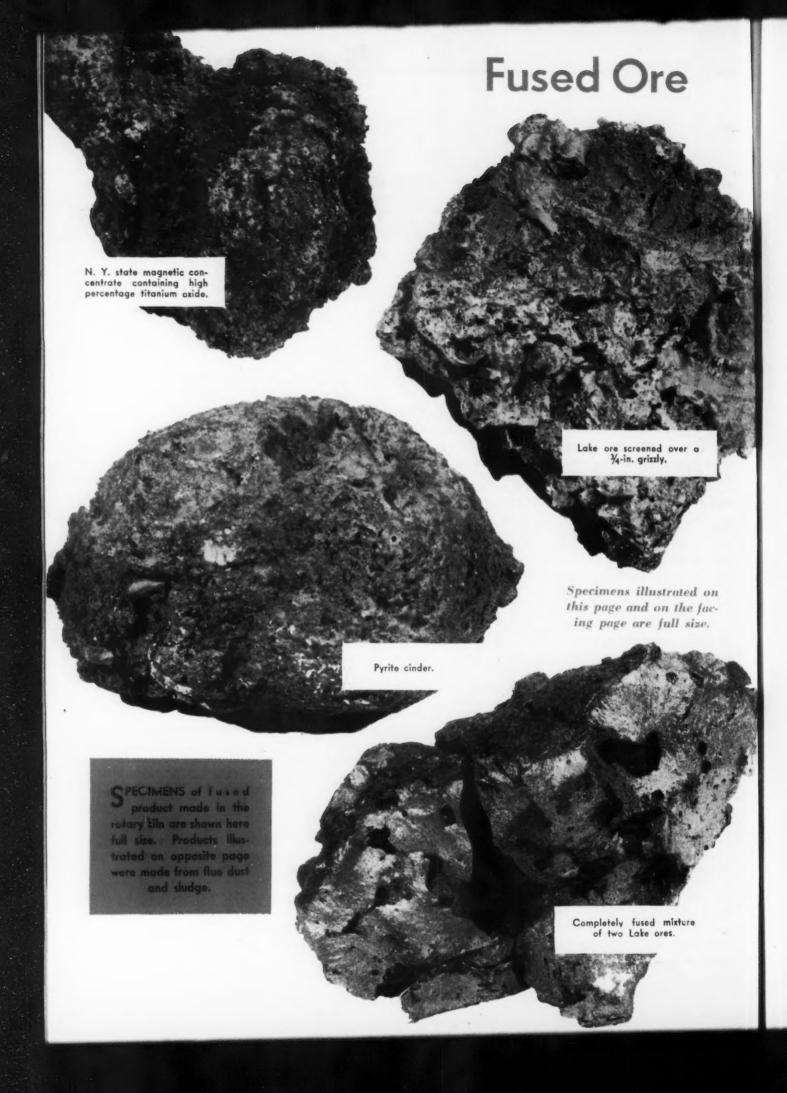
Steel overstocks can easily become an expensive luxury. We suggest you watch your inventories and keep in touch with us for your current requirements.

Joseph T. Ryerson & Son, Inc. Plants at: New York, Boston, Philadelphia, Detroit, Cincinnati, Cleveland, Pittsburgh, Buffalo, Chicago, Milwaukee, St. Louis, Los Angeles, San Francisco.

RYERSON STEEL

April 5, 1949

- ► Reflecting effects of steel plant expansion, average capitalization per ton of ingot capacity is more than 15 pct higher today than it was 2 years ago. Translated into money, there is over a billion dollars more invested in the industry now than there was at the end of 1946.
- A solder with an <u>indium base</u> has been developed for <u>hermetically sealing glass</u> to <u>metal or glass</u> to <u>glass</u>. The solder is applied at about 260°F. Users say that the joint doesn't pull loose under vibration.
- Twist drills will be the product of a <u>new company</u>, N. V. Borenfabriek, which has been formed by Belgian and Netherlands interests with American participation. A plant will be built in the works of the N. V. Stoomolieslagerij van J. van Vollenhoven. Republic Drill and Tool Co. will survey construction and furnish technical help. Plant is expected to be finished about the middle of the year and will furnish bulk of <u>requirements of Benelux countries</u> which formerly depended on imports.
- A <u>continuous fusion operation</u> for preparing charge and feed ore of optimum size and density <u>for openhearths</u> has been successfully used on more than 1000 tons of iron-bearing metals. Conversion costs approximate those of downdraft sintering processes.
- The use of unemployment figures in gaging the trend of buying doesn't give the whole story. Some industrialists point out that the shorter working week in some industries is just as important as layoffs. This means less spending.
- One industry being watched closely is automobiles. If top output is continued and there is not enough buying later in the year, the steel industry will find one of its mainstays becoming conservative in steel buying.
- Total inventories of steel companies at the beginning of this year were about 19 pct higher than they were a year previously. Some \$80 million more was tied up in scrap stocks and that market today is feeling the effects of mill action to more than wipe out this differential.
- Sonizon, a non-destructive method of measuring thicknesses, is being used by GMC in Cleveland to measure the thickness of the silver deposit on the wearing surfaces of friction bearings. This ultrasonic method is refined application of Sonigage testing methods originally developed by GMC.
- within 30 days most steel warehouse inventories will be in the best shape since 1941. In some sectors rails are being offered warehouses for the first time in 6 years and the first wide plates in several months are coming through.
- In the Midwest there is a move afoot to cut the prices on cold-rolled products unless some method can be found to cover a wider sales area. Availability of cold-rolled products, low volume and high selling costs are responsible.
- Swedish electrical engineers are expected to shortly reveal results obtained with the use of stirring coils attached to the bottom of electric arc furnaces. These coils are reported to give a pronounced stirring action to the bath in arc furnaces, without affecting the slag.
- According to an agreement signed by France and Italy, a <u>customs union</u> between the two countries is to become effective within a year. The agreement aims at an economic union within 6 years.
- Cupola stack emission control is getting more and more attention as communities clamp down on air pollution. One corrective system is patterned after that used for blast furnaces, involving closed top operation, a dry dust catcher, a washer to remove small particles.
- It has been whispered rather loudly that <u>John L. Lewis will try for a 30-hour week and 50¢ a ton royalty for pensions.</u> An extended strike would hit the steel industry as usual because of the need for coke to support the high operating rate. With the economy on the downtrend any tieup in coal or steel may have a stronger <u>deflationary effect</u> than those of recent years when inflationary factors were accentuated.
- The cold practicalities of politics are making the going rough for Riverlake Belt Conveyor Lines, Inc., the "rubber railroad," in the Ohio legislature.
- The government has been using a practical type of moral suasion to <u>induce</u> aircraft engineering personnel to move to plants where they are needed. The engineer is simply told where the government is placing contracts, the implication being that this is where his future is.



for the Openhearth

By E. S. KOPECKI Metallurgical Editor, THE IRON AGE





A continuous fusion operation, using iron-bearing materials of any degree of fineness as raw material, has been developed for the production of charge and feed ore of sizes and densities best suited for the openhearth process. Pilot plant experiments conducted successfully on more than 1000 tons of various grades of iron-bearing materials indicate the efficiency of the process, at conversion costs approximating downdraft sintering processes. A description of the plant and its products is given by the author.



A CONTINUOUS fusion process, using iron ores of any degree of fineness as raw material, the product of which is suitable for both openhearth charge and feed ore and blast furnace charge, has been developed for the Great Lakes Steel Corp. The term

fused ore is used to differentiate the product and the process from downdraft sinter and nodules, and also because the ore is actually fused, either partially or completely. In the latter case it may be cast into molds of any desired size or shape. While the product is intended primarily for openhearth use, variations in procedure make possible the production of a product suitable for blast furnace use. The apparent density of both types of product is 4.0+.

In order to develop the potentialities of the process and product, a small plant, 50 to 100 tons per day capacity (see figs. 1, 2 and 3) was built and operated at the Hanna Furnace Corp., Buffalo, under the supervision of Lewis E. Lindemuth. The plant operated during 1947 and 1948 during which time suitable openhearth ore was prepared from various materials, including Lake ore fines in various grades, flue dust, gas washer sludge or sump dust, magnetic concentrates, pyrite cinder and aniline sludge. Some of these materials were of a fineness of more than 60 pct through 325-mesh.

Based on a French method known as the Follsain sintering process, which is claimed to have never been developed successfully, the fused ore technique has been carried out at Hanna Furnace Co. in a rotary kiln (fig. 1). The ore and fuel bins, fuel being either coke breeze or anthracite coal, are constructed in such a manner that, as shown in fig. 2, their contents are fed onto a belt conveyer with table feeders. The belt conveyer discharges into a pug mill for mixing, from where the mixture is discharged into a bucket elevator and lifted to a chute down which it passes by gravity to the rotary kiln.

The charge passes down the kiln, and when within 3 to 5 ft of the discharge end, a blast of air, preheated to approximately 1300°F, is directed downward on the preheated charge at a sufficient pressure to agitate the material through



the depth of its bed. The preheated air striking the preheated ore and fuel generates almost instantly a temperature sufficiently high to fuse the ore. The products of combustion passing up the kiln pre-

heat the ore and fuel as the latter moves down the kiln.

Adjacent to and paralleling the lining of the kiln, there is permanently located a water-cooled steel knife-edge, see fig. 1, which cuts from the lining any partially fused ore adhering to the lining. Pieces of semifused ore, scraped from the lining by the cutterbar, drop back into the fused, or semifused, ore and so build up into sizes suitable for openhearth use.

An alternative procedure is to completely fuse the ore by the addition of a slight excess of fuel so that the ore leaves the kiln in liquid form and

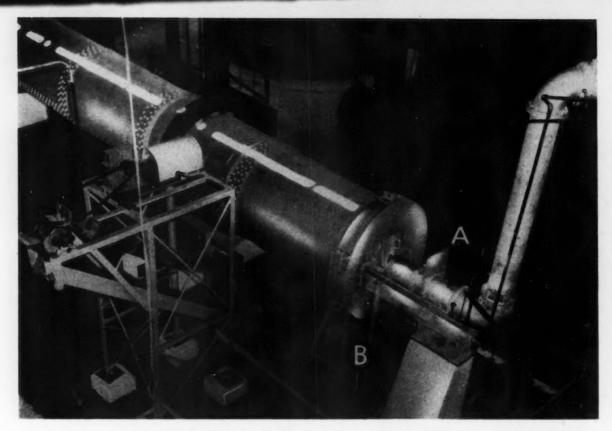
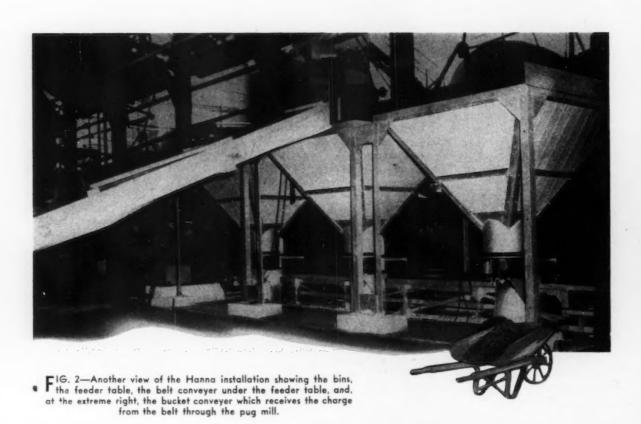


FIG. 1—View of the discharge end of the kiln, showing the hot-blast pipe (A) and the water-cooled knife-edge (B). The scraper conveyer was later changed to a pan conveyer for receiving fluid ore, and the adjustable metal end hood was replaced with brick (see fig. 3) after proper location for the blower was determined.



solidifies in the pan conveyer to the size and shape of the pans used. From the pan conveyer the ore passes over a series of screens to separate it into different sizes: Over 4 in. is considered as openhearth feed ore; between 4 and 1 in. as openhearth charge ore; between 1 and $\frac{1}{8}$ in. as blast furnace ore; and under $\frac{1}{8}$ in. as returned fines (the latter occurs during interruptions to the process, caused by stoppages).

An externally-fired recuperator is used for preheating the blast. The most economical fuel, in a steel plant would be blast furnace gas. Instruments record the temperature of the air blast and the temperature of the exhaust gases (the latter temperature averages 500°F). Pyrometer couples are inserted throughout the length of the kiln at 10-ft intervals and temperatures recorded hourly to show the preheating stage arrived at as the material passes down the kiln.

When fuel is added in excess of that required for fusing, the product consists of metallic iron and iron oxide. The iron content of the product, resulting from materials normally carrying 50 to 55 pct iron, can be increased to as much as 75 pct.

A structural study of various grades of product is presented in fig. 4. The white areas represent metallic iron, the gray regions indicate iron oxide, and the black areas represent voids.

In all, more than 1000 tons of flue dust and other iron-bearing materials were successfully processed. Success in obtaining a product suitable for the purpose intended, when made from different types of iron-bearing raw materials, was found to depend upon control over the following factors:

(1) Temperature of preheated charge when it reaches the point where the air blast strikes it.

(2) Reasonable uniformity of blast temperature. The temperature can range from 1250° to 1500°F, but should be constant at any temperature within this range.

(3) A blast pressure that should be sufficient to agitate the charge in the kiln to its complete depth. Pressure depends upon depth of charge

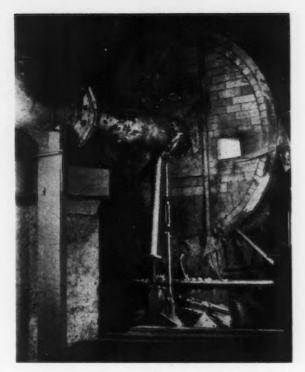


FIG. 3—Closeup of the discharge end of the rotary kiln.

and upon nature of the ore being fused; heavy magnetites demand the highest pressure and gas washer sludge the lowest, of the types tested, due to the difference in bulk density.

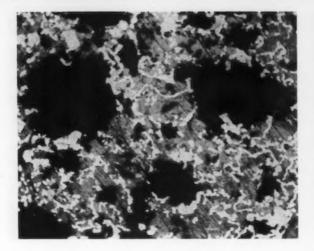
(4) Blast volume, which depends upon the fuel used, and which averages 100 cu ft per lb fixed carbon (volume measured at atmospheric conditions).

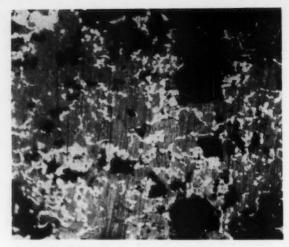
(5) Preheat temperatures and size of product, both of which are controlled by varying the rotating speed of the kiln. High speed brings the material through the kiln at a lower preheat and results in a smaller size of product; low speed has the opposite effect.

In order to overcome this two-fold influence of



PILES of fused ore, classed as openhearth feed ore, produced in the rotary single kiln at Hanna Furnace Corp., from Mesabi ores.





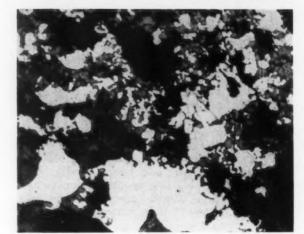


FIG. 4—Structures of various samples of product; the white constituent is metallic iron, the gray areas represent iron oxide, and the black areas indicate voids. 50X.

speed of kiln on both preheat temperature and size of product, a kiln of two sections of different diameters, independently driven, is recommended. This type construction will make possible regulation of preheating temperature without affecting size of product. This is most important to the process, since different types of ore possess different degrees of refractoriness and require different preheat temperatures.

A second important reason for the double-kiln is that in a rotary kiln material segregates according to size and specific gravity. Fuel is generally larger than the ore and of less weight, and, with certain grades of material, the fuel will segregate to the top surface and will not be sufficiently mixed with the ore for best economy and uniform preheat. By dropping the ore and fuel from the smaller diameter section (preheat zone) into the larger sized cylinder (high temperature reaction zone), the two components are remixed before passing under the air blast.

In a double-diameter kiln capable of treating 500 gross tons per day, the estimated size is a preheating section 8 ft in diam and 80 ft long. discharging into a reaction section 14 ft in diam

and 14 ft in length. Each section is driven independently with variable speeds ranging from ½ to 2½ rpm. The degree of preheat would be determined by the speed of the material through the preheating section of the kiln; and the second section would be independently driven for control of size of product, high speed giving a smaller size and low speed a larger size.

Another advantage to the proposed double-kiln is that the water-cooled knife edge passing through the reaction section could be supported on both ends instead of cantilevered, as in the case of the single-kiln Hanna Furnace pilot installation. Also, air, oxygen or other gases could be introduced at the junction of the preheating and reaction sections at times when elimination of certain oxidizable impurities is desired on a larger scale than normally encountered. Other advantages of the proposed construction are: (1) Additional fuel can be added at the junction when, in event of delays, the preheat temperature falls below that required, and (2) chemicals for any special purpose could also be added at this location.

Western Metal Congress . . .

Los Angeles to Be Host, April 11 to 15, to 6th Western Meeting

THE sixth Western Metal Congress and Exposition, to be held in Los Angeles April 11 to 15, will feature a comprehensive program of technical sessions prepared by the western chapters of five national technical societies, and an exhibition of metalworking equipment and supplies by 200 companies.

The congress, under the general chairmanship of E. R. Babylon, Kaiser Co., is sponsored by the American Society for Metals and 17 cooperating societies and is designed as the western counterpart of the Metal Congress held in the east each year.

Individual technical programs are being developed by the American Society for Metals, the American Welding Society, the American Foundrymen's Society, the Society for Non-Destructive Testing, and the Metals Division of AIME. The sessions will be held in both the Hotel Biltmore and in meeting rooms at the Shrine Convention Hall. Chairmen of the various societies arranging these programs are: Chairman, American Welding Society, E. O. Williams, Victor Equipment Co., Los Angeles; chairman, American Institute of Mining & Metallurgical Engineers, Metals Division, Leo Shapiro, Douglas Aircraft Corp., Santa Monica; chairman, American Foundrymen's Society, L. O. Hofstetter, Brumley Donaldson Co., Los Angeles; and chairman, Society for Non-Destructive Testing, Justin Schneeman, X-Ray Products Corp., Los Angeles.

Plant tours have been arranged for the plant of C. F. Braun & Co., manufacturers of pressure

Societies Cooperating in the Western Metal Congress and Exposition

American Institute of Electrical Engineers American Institute of Mining & Metallurgical Engineers

American Chemical Society
American Foundrymen's Society
American Petroleum Institute
American Society of Civil Engineers
American Society of Mechanical Engineers

American Society of Mechanical Engineers American Society for Metals American Society for Testing Materials American Society of Tool Engineers

American Welding Society National Assn. of Purchasing Agents Pacific Coast Electrical Assn.

Western Oil and Gas Assn.

Pacific Coast Gas Assn.
Purchasing Agents' Assn. of Los Angeles
Society of Automotive Engineers
Society for Non-Destructive Testing

vessels and other oil country equipment, and Consolidated Western Steel Corp.

The equipment exhibition will be held daily in the Shrine Convention Hall, where two floors will be occupied by the displays. A highlight of the congress will be a dinner-dance to be held at the Biltmore Hotel on April 14.

Requests for hotel reservations should be addressed to Allen K. Pollock, Manager, Convention Bureau, Los Angeles Chamber of Commerce, 1151 South Broadway, Los Angeles.

Broach Designed For Two Pieces

On a special serrating job, it was found economical to design and build a broach for just two pieces. The two pieces to be produced were cast aluminum bracket plates 22 in. long x 1¾ in. thick. It was necessary to machine a total of 48 90° serrations in a 1½ in. diam hole, located at one end of the casting. This serrated hole had to be machined in an exact center-distance relationship to a round hole machined at the other end of the plate.

It proved to be more practical and economical

to manufacture a broach for obtaining the required high degree of accuracy of serration angle and spacing than to try to form the serrations by some other methods of machining, even though only two plates were to be turned out.

The broach, as designed and produced by Colonial Broach Co., Detroit, is 22 in. long, with 8 in. of cutting teeth. The broach is of high speed steel, heat treated to a hardness of RC 62 to 64, then surface treated and polished.

· · Control of Cupola

THE PROPERTY OF THE PROPERTY O

and

THEODORE G. KENNARD.

Consulting Metallurgists, Los Angeles,

and

W. A. SAYLOR,

Chief Metallurgist Consolidated Western Steel Corp., Los Angeles

N 1947 the State Legislature of California passed an enabling act which allowed counties to set up Air Pollution Control Districts, adopt rules and regulations, and enforce them. In October of that year Los Angeles County set up an Air Pollution Control District and subsequently adopted a set of rules limiting the discharge from various types of stacks, including cupolas, to the following: Particulate matter, 0.40 grains per cu ft at standard conditions of temperature and pressure; lead, 0.035 grains per cu ft; zinc oxide,

B W W

FIG. 1—Essential features of the Kennard-Drake installation are shown here. The cupola stack is shown at A; B is the charging bell; D is the dry dust collector; W is the wet washer, and S is the stock line indicator.

0.035 grains per cu ft; sulfur compounds, 0.2 pct by volume, and smoke, less dark than No. 2 Ringelmann chart.

It is obvious that unless the Air Pollution Control District modifies its rules materially, every foundry which continues to operate a cupola must necessarily remove the particulate matter and reduce the smoke to the degree required by these regulations.

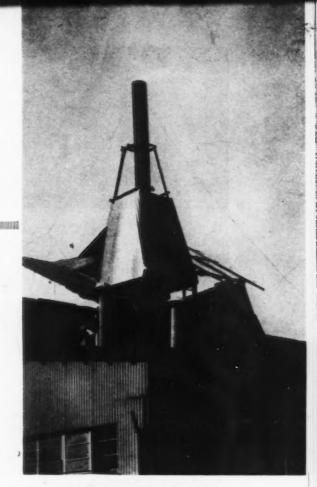
It would appear that a successful method of cleaning up the cupola gases could well be patterned after the tried and proven installations so long used by blast furnace operators. This would require (1) Operation with a closed top to confine the gases and prevent combustion in the stack, (2) removal of the large particulate matter in a dry dust catcher, (3) washing the gas adequately to reduce the particulate matter to less than 0.4 grains per cu ft, and (4) combustion of the cooled and cleaned gas to reduce the smoke.

Such a system should be comparatively simple in operation. Consumption of water would be low, perhaps less than 10 gal per 1000 cu ft of gas, and the results should be acceptable to the air pollution control authorities.

The question may arise: What effect will these new regulations have on the foundry industry? The open top cupola, in spite of its high melting efficiency, seems doomed except in those places where no restrictions are placed on the emission from the top. This means the elimination of many of the small foundries in the large centers of population. It will require

Stack Emissions

contral regulations by local governmental agencies is focusing new attention on the problem of controlling stack emissions from such units as cupolas. This article describes an installation, involving a closed charging bell, dry dust collector and a wet washer, which results in stack emissions within the limits set by the Los Angeles County air pollution control authorities. Data are also given on the nature of the matter collected by this system.



VIEW of the cupola exhaust from the washer. Photo was taken with cupola in operation.

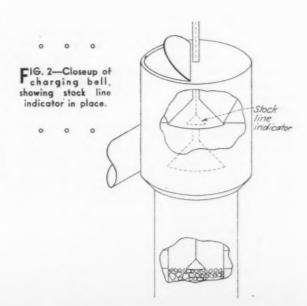
a slightly higher capital investment by the foundries which continue to operate cupolas. Many of the larger operators will, no doubt, install hot blast equipment, which, once the gas is confined, can be done at a slight increase in cost. The foundry will become a cleaner place in which to work, and quality in general should improve.

Following extensive investigation, plans were completed to install a closed-top charging device, together with a dry dust catcher and a gas washer, in accordance with plans developed by Kennard and Drake. The equipment, shown in fig. 1, was to be installed on the No. $3\frac{1}{2}$ Whiting cupola of the Consolidated Western Steel Corp. A burner was to be added if the smoke persisting after the washer was still too dark due to carbonaceous matter.

So little was known at this time regarding the probable amount of dust composing the various particle sizes emitted from this particular cupola under different operating conditions that it was thought best to design, build and operate a full-sized closed-top charging system at once, rather than to spend a great deal of time in preliminary testing while operating the regular old-type open-top cupola. This procedure would not only solve the particular problem for this foundry but would also make it possible to obtain data on the operation and performance of a cupola under such closed-top conditions.

Among the various factors considered in designing the equipment was that the system

must provide for the cleaning of the gas and the collection of particulate emissions without requiring extra blowing equipment and the top must be rigid enough to withstand the shock of a 1000-lb metal charge. The top should operate automatically and its weight should be such as



Screen Ar	TABLE	'l ypicel Day's Run
	Mach	Pa
-0.4 -0.4 -0.4		1.7 10.7 20.4 27.0 7.8

not to require the use of additional reinforcement.

It was also desired to provide a means of measuring the height of the stack column at all times (see fig. 2).

The dry dust matcher was designed of a size and construction that it will not only withstand the high temperatures encountered at times, but will remove the coarser particles from the gas stream without materially increasing the static pressure.

The efficiency of the gas washer in such a system needs to be only barely enough to remove the particulate matter to the point at which 1.25 grains per cu ft of blown air are left in the washed gas.

This figure was obtained on the basis of the following reasoning: If the average open-top cupola with a charging door which permitted dilution of the stack gases with air in the ratio of 3:1 up to 5:1 or more (1 part gas to 3 or 5 parts air) was permitted by the air pollution control authorities to operate with a total emission of 0.4 grain particulate matter per cu ft, then an installation with a comparable 0.3 grain or less would not be in violation. Furthermore, if the regulations were tightened subsequently, the flexibility of the installation was sufficient so that only the washer would need to be modified in order to meet the new specifications.

A baghouse was also considered in place of the washer, but this idea was rejected in view of the higher cost of installation and the probable much higher cost of maintenance due both to the high sulfur content of the particulate matter and the high temperatures encountered at times.

On July 10th the local air pollution control office issued an experimental permit to install the equipment as designed. On Aug. 1 production was started with the cupola operating with the closed top, dry dust collector and the gas washer. It is interesting to note that until Aug. 18 the cupola was operated without the stockline indicator. This device was first used on that date, and its value became apparent at once since the quality and smoothness of the operation improved daily thereafter.

The following data on the operation of the cupola cover the period from Aug. 1 to Oct. 12, 1948. The equipment was used during all this time and is still in regular service.

The charge consisted of 100 pct scrap, broken to 18 in., with coke, limestone, ferrosilicon, ferromanganese and soda ash.

Thermocouples were placed in 5 positions in the gas stream and wired so they could be read at a central station. The locations were as follows: (1) Exit from charging bell; (2) entrance to dry dust catcher; (3) outlet from dry dust catcher; (4) entrance to gas washer, and (5) exit stack from gas washer. The temperatures observed were in line with expectations based upon recorded data.

Air and gas velocities and volumes were measured with a Pitot tube, since the cupola was not equipped with an air weight control. Air was furnished by a Sutorbilt positive type blower.

Provision was made for taking gas samples at a point between the dry dust collector and the washer, so that composition analyses could be made. The total emission collected by the dry dust collector could be measured and sampled after each day's run, and sampling for particulate matter was made both on the washer

TABLE II Distribution of Particles by Magnetic Characteristic		
Size	Magnetic, Pet	Normagnetic, Pet
+8 -5 + 9 -6 + 20 -20 + 36 -26 + 100	41	18.7 28.7 46.1 61.0 61.0 41.5

water at regular intervals and in the exit gas flow after the washer.

Test runs have shown a surprising regularity in the amount of dry dust collected, even though the scrap charged has varied considerably in character at times. The average amount of dry dust collected varies from 1.9 to 2.5 grains per cu ft of air blown into the tuyeres, or 79,000 to 104,000 grains (11.3 to 14.9 lb) per ton of iron charged. A screen analysis of a typical day's run is given in table I.

Much of the material represented is distinctly magnetic in character. Although a sharp distinction cannot be drawn between magnetic and definitely nonmagnetic particles, classification on the basis of hand-picking with a powerful permanent magnet separated the material in the proportions given in table II.

Measurements were also made of the relative amounts of heavy and light particles in these various sizes, using liquids of sp. gr. 1.81 and 2.90 as the separating medium. These are given in table III.

These density measurements are not at all in agreement with the popular conception that the larger particles emitted from an iron cupola stack are primarily iron oxide.

Chemical analyses of this dry dust showed a surprising amount of lead and zinc, as well as very significant amounts of sulfur. As would be expected, there was considerable variation in the lead and zinc content for different runs, depending, in large part, on the nature of the scrap charged. An average range of values is given in table IV.

These quantities of sulfur, which are extractable by boiling with dilute sodium hydroxide and water, respectively, are considered to be very significant, since they indicate that these emission particles can be the direct cause of much of the severe corrosion and chemical attack which are commonly known to occur in and near iron foundries.

Varying amounts of water have been used in the washer, depending upon the degree to which it was desired to clean the gas. Considerable variation in the amount of particulate matter in the washer was noted at times, due in large part to variations in the cupola operation and nature of the scrap charged.

Approximately half of the 2 to $2\frac{1}{2}$ grains of particulate matter in the entering gas is removed and carried away by the wash water, using a water consumption of approximately 10 gal per 1000 cu ft of gas. Increasing the rate of flow was found to increase the amount of particulate matter removed. Further economies in the washing process are possible by recirculating the water and, if the air pollution requirements are changed in the future to require additional cleaning, this may be met, first, by increasing the water flow, and then, if needed, a secondary washer of the Theisen Disintegrator type may be used, or even an electrical precipitator.

Screen tests and microscopic examination show that most of the particulate matter removed by the wet washer is very fine, running,

TABLE III		
Allee	Heavier than 1.81, Pet	Lighter than 1.81,
- 9 + 10 - 20 + 35 - 32 + 100 - 100	9.4 6.4 8.5 7.3	57.8 36.4 10.5 27.9
= 8. 1.10	Heavier than 2.88 Under 0.1 6.3	Lighter than 2.00 Over 00.9 93.7

usually, from 85 to 95 pct for the sizes below 44 microns (325 mesh).

The particulate matter removed by the wet washer varies considerably in composition from time to time. Table V shows the chemical composition for the solids obtained by evaporating the washings in typical runs. The composition of particulate matter left in the gas after passing through the washer, based on samples obtained by passing the washed gas through a dry impinger and a series of wet impingers, is given in table VI. Although the lead and zinc contents given in the table are relatively high, the washed gas meets the air pollution requirements established by the Los Angeles County Air Pollution Control district.

Pure gas samples for analysis were easily

TABLE IV Average Chemical Values in a Typical Day's Run					
				Bullier	
	Flood Carbon	Lead	Zine Oxide	Alk. Sel.	Water Sol.
Composite + 100 mesh Composite - 100 mesh					

obtained, and were collected from a sample outlet located between the dry dust collector and the washer. There was no chance for outside air to enter the closed system and contaminate the sample. The CO₂ content showed little change from the beginning to the end of the heat, provided that the charging conditions remained the same. In the absence of accurate gas analyses the coke charge may be seriously off-balance with respect to the wind blown, with no easy way of checking and correcting this condition.

Samples were also analyzed for sulfur dioxide. The content was found to be very low, ranging from 0.0003 to 0.0006 pct by volume.

Among the conclusions drawn from experience to date with this installation are that use of a closed charging bell, a dry dust collector and a washer is a sound, practical method of controlling emissions from a cupola, and that confining the cupola gases by means of the closed charging bell and preventing the influx of extra air through the old type of open charging door has the double advantage of not requiring extra power to pick up the cupola gases for cleaning (since only the original cupola blower is used) and of preventing the dilution of these gases with a large amount of extra air. Preventing dilution with extra air facilitates the cleaning operation since it makes a tremendous reduction in the volume of gases which must be handled.

Use of the closed top reduces the temperatures in the upper part of the stack, with the resulting advantages of producing better cupola operation and maintenance and of producing a cupola gas of lower temperature, facilitating the cleaning and washing operation. Outside of

TABLE V Typical Chemical Composition of Ramoved by the We	The second second
String (\$100) Alterning (\$2,00) Lines (\$0,00) Lines (\$0,00) Marganita (\$0,00) Marganita Lines Li	6.6-31.6 2.0-5.8 7.6-2.2 2.3-9.7 2.1-3.8 2.1-2.4

a somewhat closer sizing of the scrap charge, there is no difference in operations with a closed top. The improvement in results comes largely from a better control of charging practice. The stock line is kept at a predetermined level throughout the melting period, resulting in less coke being consumed uselessly. Tests are to be made in the future to determine the effect of higher top pressures and lower coke ratios.

TABLE VI

Typical Chemical Composition of Particulate Matter in Gas After Passing Through Wet Washer

	Dry Impinger, Pct	Wet Impinger, Pc
Lead Zinc oxide Sulfur	5.94 2.20 3.54	6.80 2.90 3.60

Mist Coolant System Improves Cutter Grinding

A MIST coolant system for grinding has been developed as a result of the need for new and improved methods of grinding sintered carbide cutting tools. The advances in carbide milling were marked with improvements in diamond grinding wheels, but it was felt by the Cincinnati Milling & Grinding Machines, Inc., that additional research and experimentation were necessary to determine how to best use these wheels for sharpening sintered carbide cutters.

One of the results of this program was a conclusion that wet grinding has many advantages over dry grinding and the mist type coolant system was one technique worked out along these lines. Wet grinding prevents overheating of the carbide and provides a better surface on the cutting tool. Also it makes possible in most cases to remove more carbide per pass of the wheel, thus reducing the time required to complete the job. While wet grinding has been known to be highly satisfactory, it has been characterized by disagreeable working conditions caused by the coolant splashing on the machine and the operator and the difficulty in seeing the area where the coolant action takes place.

This self-contained mist coolant system permits the coolant to perform its function effectively, but leaves the machine, workpiece and operator clean and dry. Splashing of the coolant is practically eliminated and the operator has a better view of the work as it makes contact with the wheel. Fig. 1 shows the coolant system as it is applied to the grinder. The small, compact attachment consists of a wheel guard of special design that is connected by a flexible tube to a coolant tank, pump and suction fan in a convenient position on the floor. The wheel guard is mounted to the wheel head by means of two studs.

As shown in fig. 1, as soon as the coolant strikes the diamond wheel, wheel speed immediately transforms it into a mist which thoroughly wets the wheel. Then instead of being thrown off, the mist is sucked into the wheel guard and returns to the coolant tank through a large flexible tube.

The aluminum wheel guard supplied with the attachment has been designed for either of two popular types of grinding wheels: Type D12W, 3x%x1/2 in. and type D11W, 4x11/4x11/4 in. Vitrified cup wheels of these same dimensions may also be used and guards for other sizes of diamond wheels can be supplied. Fig. 2 shows the coolant system in place on a Cincinnati tool grinder with a milling head in position to be ground. The rubber tube over the fixture is the return flow for the coolant system and enters the coolant tank placed on the floor beside the grinder.

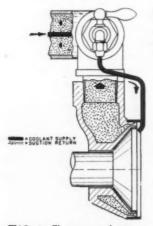
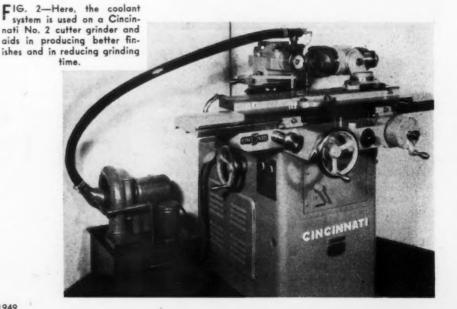


FIG. 1—The new coolant system takes the coolant on a round trip and practically eliminates splashing and gives operator better view of the work.



Cold Forming Stainless Steels

Cold forming of rectangular and non-circular parts and bulging completes the press operation discussions. Annealing, furnace equipment, pickling, lubricants, tool materials and other factors that affect the success of cold forming stainless steels, are appraised in this article, and techniques of handling specific stainless grades are evaluated.

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RAWING rectangular and other non-circular cross-sections is usually more difficult, the difficulty increasing as the shape deviates from a cup and as the part becomes deeper. The trouble is caused by unequal stress distribution within the blank. In an oval shape, the end sections of the blank have greater compressive movement than do the sides. In rectangular shapes, the corners have excess metal, while the sides have just enough. One condition in drawing rectangularly shaped items is that the limit depth is four to six times the radius of the corner, owing to the distribution of the surplus metal. In redrawing, the radius of the corners is

In the first part of this article, the author appraised the various cold forming methods and their applicability to forming specific grades of stainless. Stamping, drawing, bulging, bending, shearing, and other methods of cold forming, were described. Part I of this article appeared

in THE IRON AGE.

reduced. However, there is a consistent relationship between the radius on the drawn shell and the one proposed on the redraw for blank corner holding strength and the prevention of wrinkles. In fig. 9, the operations consist of a single cupping, followed by an anneal and pickle. It is then sized, trimmed and beaded.

Bulging involves compression, but is more often associated with deep drawing. Mechanical bulging methods use either a segmented metal die or a rubber punch. In the former, the segments are held together by springs around both the top and bottom ends. In working, the com-

pressive action of the springs causes the segments to move out forming the bulge. A difficulty associated with this method of bulging is that there are slight flats on the surface that are objectionable if the completed item must be highly polished.

Rubber punches eliminate these flat areas, but rubber punches are suited only for limited production. A maximum of 3000 to 4000 pieces are realized before the punch must be replaced. Hydraulic bulging is quite suited for intricate shapes, but correct volume and pressure, proper venting, and the prevention of leakage are hard to maintain.

One recently described bulging application involved the forming of a milk pail. No trouble was experienced in the four draw sequence with anneals after the second and fourth draws. The milk pail was too large for rubber bulging within tolerance, and rubber bulging tools deteriorated rapidly under the high pressures required, with dimensions altering accordingly. Hydraulic bulging was successful, but there was difficulty in the use of oil as the bulging media. Leakage caused the abandonment of this fluid for use in production runs. Water and soluble oil proved satisfactory, expanding the pail while under pressure without the use of the press ram. To avoid the loss of liquid, the pail was inverted at the time of expanding, held by gaskets. The pressure exerted by the liquid produced the required form, after which the liquid ran back to a storage receptacle. The tolerance for the pail diameter was ± 0.002 in. and the production rate was 50

per hr.

Spinning, closely associated with drawing since it often follows deep drawing, belongs with operations such as bulging, necking, flanging, and beading. As in deep drawing, the spinning stainless steel requires greater pressures and more rigid equipment than spinning low carbon steels. The speed of spinning is also reduced to about 33 pct of that used for plain carbon steels and about 25 pct of that used for the copper alloys. The skill of the operator is a determining factor in the quality of a spun part since individual judgment is necessary to determine speeds, pressures, and the amount of cold work permissible before annealing is necessary.

In spinning, the edge of the article is left untouched until the work is almost completed. This prevents cracking or splitting from the outer edge inward. In some cases, the article is completely spun with a flange, and then it is trimmed and beaded. Spun stainless also has the characteristic of stress cracking, and it is best to anneal between critical spins, especially where there are a multiple number of spins required for reduction. It is also good practice to hold to a minimum the amount of work on the final spin, enough to obtain the benefit of cold work hardness but not enough to risk stress cracking. Violations of this practice often result in cracking during assembly or after the article is in use.

A typical sequence of both deep drawing and spinning operations is shown in fig. 10. The first reduction was about 40 pct; the second reduction was about 30 pct; and the third and last reduction was approximately 22 pct. An anneal was interspaced between each draw. In spinning, the first spin consisted of necking and flanging the top, care being taken to complete most of the reduction in the neck before producing the entire sweep up to the mouth of the item. The second spin rounded the bottom of the item.

Formed contour

A

Curled edge

Trim.

Section A-A

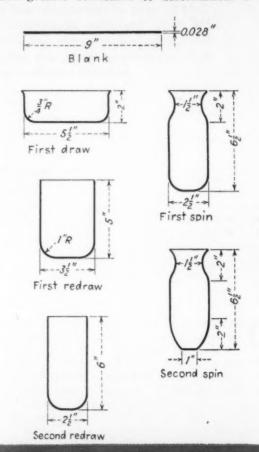
Section B-B

Fig. 9—Drawing non-circular shapes presents metal gathering, and thinning difficulties. This annealed

Gathering and thinning difficulties. This annualed 302 stainless form was made by a single cuppling, fellowed by annual and pickle and then size, trim and bead. The sheet was 0.035 in thick.

In the fourth classification of cold forming where a squeezing action is involved, cold heading of wire to form rivets and riveting fall most frequently within this category. Regardless of the stainless steel employed, the material should have a uniform grain structure and maximum values in both toughness and impact strength. To avoid such surface irregularities as seams, splits, and slivers, either centerless ground or cold drawn stock is used.

In cold heading of stainless steels, these analyses, as in other cold forming operations, have greater resistance to deformation. This



TG. 10—Spinning Iraquently follows a deep drawing sequence as shown here. Draws with reductions
at 40 pct, 30 pct and 22 pct were followed by two
spinning operations, the first consisting of necking and
llanging the top and the second consisting af rounding the bettom of the part.

makes necessary heading machines of greater capacities and more perfect alignment, since any play in the headers will be greatly exaggerated. The energy increase necessary for stainless steels ever the low carbon steels is approximately 40 pct, the resistance being apparent in tool life and the ability to fill out difficult head shapes and produce sharp corners.

More frequently used stainless steels for cold heading are types 302, 410, and 430, the latter analysis being preferred since it is most easily formed and has a wide range of applications. In structures assembled with rivets, the material should be the same because of differences in corrosion resistance and differences in color. This latter property is noticeable when chro-

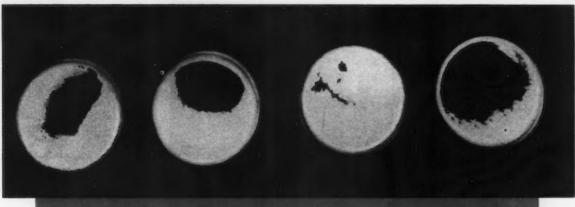


FIG. 11—Absorbed oil from a dirty crate sensitized the bottoms of these parts during the anneal with the result that during pickling the acid attacked the sensitized region and tuined them.

mium-nickel and the straight chromium compositions are placed next to one another. Where structural design permits, welding is normally preferred, this choice being imperative in equipment used for food processing.

While stainless steels are noted for their ductility and workability, any single composition can be worked to a limited degree, beyond which stress cracking may occur. Fortunately, this ductility can be restored by proper annealing so that further work can be performed. In cold working austenitic alloys, slip planes form, the boundaries of which have precipitated carbides. Annealing dissolves into solid solution the precipitated carbides and relieves stresses set up by cold working.

Before annealing, however, preliminary steps are required. The article must be chemically clean, since any carbonaceous matter on the part will enter into the material and form additional carbides. These carbides, depending upon the amount of smut along with the type that is on the article, may appear as a surface condition or may extend throughout the entire cross-sectional thickness of the article. Stainless steel in this condition is termed sensitized. The loss of corrosion resistance is tremendous, this specific type of corrosion being termed intergranular corrosion. It is good practice to have efficient cleaning procedures to remove lubricants. Spray cleaners are efficient, and where soluble lubricants are employed a wetting agent should be added to the cleaning solution to assure complete removal of foreign material. Upon exit from the wash, the articles should be placed in clean, paper lined containers, and the container top should be covered with paper. It is also a good precautionary measure to equip operators that handle clean stainless steel articles, either after wash or before annealing, with clean gloves so that body grease is not deposited upon the work.

Annealing temperatures of most austenitic steels can be within the range of 1900° to 2000°F, whereas, the highly alloyed compositions such as types 308, 309 and 310 have a higher maximum range of 2100°F. The proper temperature is dependent upon the design and

weight of each item, and this factor is considered along with the load in determining the time and method of the quench cycle. The method of cooling depends upon such factors as the cross-sectional thickness, composition, design of the item in that particular stage of manufacture, and the method of loading. The austenitic stainless grades normally employed in deep drawing or spinning, type 302 and its modifications, can be quenched under forced air if the cross-sectional area is thin. In the heavier sections, water quench is preferred since the more rapid cooling rate assures the retention of all dissolved carbides within the solid solution. In high alloy types such as 308, 309, 310 and 316, the water quench is preferred if the design will permit the use of this drastic quenching media. Water quenching can be either by immersion or spraying, the latter being used where distortion is a problem. The number and arrangement of the spray heads depend upon the design of the part, the number within a unit loading, and the method of loading a tray. It is important that the supply of water be ample and the pressure sufficient to prevent the formation of a steam blanket that might retard the cooling.

The time-temperature relationship in an annealing cycle is important since high temperatures, extended periods of time within the heating chamber, or a combination of these two factors will produce abnormal grain growth and cause excessive orange peel on the surface of a redrawn article. This is particularly objectionable if the item is to be highly polished. Also, if the part to be annealed has a varying cross-section, the proper time-temperature relationship established for heavier sections may be excessive for thinner sections. If this is a possibility, it is best to preheat the items to a moderate temperature, soak at this temperature for a sufficient amount of time, and then transfer them to the proper annealing heat but with a shorter soaking period than would be normally necessary. The article can then be quenched.

Ferritic stainless steels are not air hardening and moderate temperatures are sufficient for both full annealing and stress relieving.



FIG. 12—Another example is shown here of corrosive attack during pickle on the sensitized areas of drawn parts.

Those that contain less than 18 pct chromium are heated to 1400° to 1500°F and air cooled. Higher chromium ferritic stainless steels are heated to 1550° to 1650°F, and water quenched where the design is not too complicated.

The majority of the martensitic stainless compositions are air hardening, precluding the use of a controlled cooling cycle. Annealing of light, uniform sections such as stampings and shallow drawn parts is at a temperature range of 1300° to 1400°F, and parts must be properly soaked at temperature and air cooled. If maximum ductility is required, a temperature of 1500°F is employed with furnace cooling to a temperature below the air hardening range, approximately 1050°F, followed by air cooling. In martensitic compositions that contain columbium, titanium, or aluminum, the air hardening properties are not as prominent. These may be annealed at 1350° to 1500°F and cooled at any convenient rate that will not set up contraction stresses.

The choice of furnace equipment in annealing stainless steels is important not only from the standpoint of uniformity but also in the interest of cost reduction on subsequent operations. It has been within the author's experience in annealing austenitic types that selection of controlled atmosphere furnace equipment established a scale condition that was readily removed. In the use of an oil fired, hand controlled, batch type furnace, a hard tenacious scale formed, undoubtedly the result of alternating oxidizing and reducing conditions within the furnace during annealing. Subsequent removal of this scale by pickling required a minimum of 30 min and had to be followed by a vigorous scrubbing. Upon the use of the continuous furnace using a cracked gas atmosphere, scale formation was loose and easily flaked off. This scale was removed in approximately 15 min, after which a light brushing was necessary. This reduction of time effected a substantial savings.

In annealing items the design of which permits the use of a dissociated ammonia furnace atmosphere, scale removal procedures can be

eliminated. Uniformity of furnace is another feature to consider since this uniformity, not only between items in the same charge but also from charge to charge, will realize less rejections on reworked items along with less difficulty in press adjustments during a reworking cycle.

Although there are three principal methods of scale removal, grinding, sandblasting and pickling, the latter is the most widely used method on light gage preformed items. In pickling, a solution should be selected that will remove the scale

without affecting materially the underlying metal. Also, pickling solutions should be under control so that not only efficient pickling in minimum time be realized, but also a maximum amount of work be pickled before the solution is discarded. The choice of pickling solutions are numerous, each having advantages and disadvantages. A limited discussion of this phase can be brought about by relating some specific experiences.

Two solutions were used in a test for a specific job, the first a 50 pct muriatic acid bath and the second a 10 pct sulfuric acid bath containing 1/4 lb of rock salt per gal of solution. The first solution was placed in an earthenware crock that was immersed in a hot water tank, providing a solution temperature of 150° to 170°F. This pickling agent proved unsatisfactory since the time necessary to obtain clean work was rather erratic along with the realization of metal loss. The etching effect of the acid was noticeable in areas that had relatively loose scale, but parts had to remain in the pickling solution until harder scale formations were loosened. The use of the sulfuric acid solution containing rock salt proved less satisfactory in that pitting occurred, especially when the solution was near exhaustion. Metal loss was also an objectionable feature.

A nitric-hydrofluoric acid mixture (HNO₂, 8 to 20 parts; HF, 1 to 4 parts; H₂O, 100 parts) was operated from 130° to 150°F was provided with a fume hood. This bath was quite successful, even though pitting did occur when the solution approached exhaustion. The workmen objected to the use of this bath since the solution proved irritating to the hands, even though protection was given.

The pickle solution now in use is the hydrofluoric-ferrisul bath; the hydrofluoric concentration being from 1.5 to 2.0 pct and the ferrisul concentration being from 6.0 to 7.0 pct. This bath operated quite successfully, the specific points of interest being: (1) The bath at the operating temperature of 160° to 180°F is non-fuming and no ventilating hood is required. Workmen repeatedly got the solution on their

skins with no ill effects. (2) If close control and proper balance of ingredients are made, there is no metal loss, and the appearance of the shells is a dull satin. (3) In the event that the items pickled had been sensitized in a previous operation, disastrous results were obtained, as indicated in fig. 11. Here the sensitized region is at the bottom, caused by setting the items on a dirty crate with no paper lining. The absorbed oil from the crate sensitized the bottoms during the anneal with the result that during the pickling operation there was rapid attack. Another example of corrosive attack by the pickling solution on sensitized areas is shown in fig. 12.

The tank material for the ferrisul-hydrofluoric acid bath can be either of wood or steel plate. However, in each instance, a tellurium lead lining should be provided. Tellurium lead is preferred over chemical lead in that greater service life can be expected under the conditions of contraction and expansion during that period of temperature fluctuation from room to operating temperatures. Where a large tank is employed, tie bolts running along the inside of the tank approximately 2 ft apart will aid in preventing the lead from creeping and aid in service life. A lead steam coil can be used as the heating unit. Other recommendations as to suitable tank linings are carbon bricks or stainless type 316. The latter will become quite fragile and care must be taken in entrance or exit of the basket with the items to be pickled. Stainless type 316 is a rather expensive lining, and if used, a bolted construction is recommended. Basket material is a bolted construction of stainless steel, type 316.

The sodium hydride descaling process is quite popular. This bath consists of commercial sodium hydroxide to which metallic sodium and cracked ammonia are added. The resultant sodium hydride (NaH) is the active agent that performs the pickling at the operating temperature of 700°F. The work is placed in the bath, the time factor being from a few minutes to as much as 20 min, depending upon the condition of the scale. As with the other

mentioned processes, chemical control plays a vital role in keeping the bath most favorable for pickling. The sodium hydride, which should be between 1.5 and 2.0 pct, is determined at regular intervals, and rectification is by an addition of metallic sodium. Water quenching directly after descaling blasts off loose scale, and this is followed by a bright dip in dilute nitric acid.

Passivation is recommended to assure the maximum corrosion resistance. This is true to the extent that passivation dissolves any iron particles or other foreign material that may affect the service properties of the item. Where pickling has been performed as the last step of fabrication, additional passivation is not usually necessary. However, if this is not the case, passivation would consist of an immersion in a 20 pct nitric acid solution. As with all types of pickling and passivation treatments, the acid remaining on the treated item is removed by hot and cold rinses.

In press forming stainless steels slow press speeds are recommended, especially in deep drawing the austenitic stainless steels. Slow press speeds not only permit greater reductions per draw because of the slower rate of cold working, but the less instantaneous temperature at the interface between the tool and the work during the working stroke permits the greater retention of the protective lubricating film. Good retention of film, often termed film strength, is necessary in a lubricant to minimize fouling and scoring of the tools and to decrease the frictional effect obtained through metal to metal contact. The choice of the lubricant can be made only by experimental procedures and from past experience, based upon available equipment; severity of forming tool material; the surface condition of tools and the material; and preceding and subsequent operations.

Lubricants available are too numerous to discuss in this article. A general classification can be made that will include the extreme pressure lubricants, the pigmented drawing compounds, the nonpigmented type drawing compounds, and the soap type lubricants. Both the extreme pressure lubricants (usually sulfurized or chlorinated fatty oil or paraffin waxes) and the pigmented compounds (fatty or mineral oils pigmented with whiting, talc. lithophone, white lead or graphite) are efficient. However, difficulty has been encountered in removing lubricant prior to annealing. which not only increased the cost of the operation but caused an excessive number of rejections due to sensitization. The cleaning operation, especially where there are intermediate anneals, cannot be over-emphasized since many





difficulties fabricating austenitic steels can be traced to inefficient or difficult cleaning problems. For moderate to severe drawing, the water soluble, dried film type of lubricant has replaced the pigmented type. It is used with considerable success, realizing good tool life, ease in cleaning, and low rejections.

In spinning, recent investigations revealed no satisfactory substitute lubricant equal to yellow bar soap on the basis of both cost and efficiency. At times, difficulty may be encountered in that the soap may become dry and brittle, but a simple humidifying conditioning will develop its original plasticity. Nonpigmented compounds, usually the fatty oils with suitable additions, are diluted with mineral oil, their consistency being dependent upon the operation, and are used successfully on less severe operations such as blanking, punching or perforating.

In a failure in a drawing sequence, many factors must be considered before change is made. A change in lubricant may not improve results and the difficulty may be elsewhere. Calculated reductions may be too severe, tool design may be at fault in the form of too sharp radii of fillets, selection and heat treatment of tool material may not be the best, or production tools may be improperly maintained. Any of these factors may effect the success of the forming operation.

Tool materials employed in cold forming stainless steels are rather broad, the specific choice being based upon the operation involved and the production run. In drawing, where production is limited, either the inoculated grade or the nickel alloy cast iron compositions are suitable. Where the drawing operation is not too severe and where dimensional tolerances are rather broad, cast iron dies are becoming popular. This seems to be the result of the possibilities in heat treatment to hardnesses between 45 to 55 RC. In blanking, perforating, punching and shearing, quality grades of high carbon steels are used on short production runs, whereas for circular slitting cutters al-

loy steels containing approximately 1.0 to 2.0 pct tungsten, 1.0 to 1.3 pct carbon, and a small amount of chromium, vanadium or both are acceptable.

In any of these applications, a higher quality steel composition is usually selected for medium to long runs. In deep drawing, the tool steel selection may be the air hardening, high carbon-high chromium compositions, or one of the many of high speed steels, nitrided steels, or carbides. Nitrided steels have been successfully used, but there must be careful consideration of core hardness in conjunction with case hardness. The high pressures of drawing operation may cause case failure if the core strength is too low.

Carbide dies are limited to high production schedules and care must be exercised in handling them as they are relatively fragile. In operations involving blanking, perforating, and punching, the high carbon-high chromium compositions are the more widely accepted. In heavy duty shear blade applications, the tungsten chisel steels seem satisfactory. The high speed compositions, either the high tungsten (18-4-1) of the molybdenum types, are widely used for the circular slitting cutters.

The evaluation of one analysis over another for any specific job must be on the basis of past performances taking into account the design of the part, the type and efficiency of heat treat equipment, the skill of the toolmaker, and other factors that are variable from plant to plant. Regardless of the tool steel used, high finish of the completed tool is important, this being particularly true in deep drawing tools. In some instances, chromium plating reduces tool wear.

The cast aluminum bronzes are becoming increasingly popular for deep drawing, but they are apt to wear rapidly in comparison to the alloyed tool steel compositions. Aluminum bronzes are favored where the finished drawn item is to be highly polished. Ejection tools in deep drawing also favor the use of this material because the only portion of the tool material to wear is the die radius. On push-through deep drawing, wear will be more uniform, resulting in an increase of diameter of the cylindrical shell. The use of zinc base alloys in experimental determinations of draw sequences, stretch forming, and rubber forming precludes short life, but they serve a purpose where die expense is critical.

Both wood and masonite have limited application, the former in spinning and the latter in stretch forming. Rubber is also used as die material but has short life and dimensional difficulties in the finished part may be experienced. Hydraulic forming with oil or water is tricky, but has been successful in bulging operations under close dimensional tolerances.

Brass and bronze spinning tools are widely used, but there has been some thought on possible zinc deposition that may prove as harmful as grease or dirt in producing sensitization through heat treatment. If any doubt exists on this factor, experimentation with a flash pickle prior to annealing will either prove or disprove this claim. The author is uncertain as to whether zinc deposition during spinning occurs to such an extent as to cause harmful results. In one particular instance, a flash pickle prior annealing had all the appearances of improvement of production yield. Cast iron and steel spinning tools are used, but the author has yet to find suitable steel compositions that will overcome welding of the tool to the work.

The most commonly used equipment employed in cold forming stainless steels are the various modifications of presses. In operations involving shock, such as experienced in blanking or punching, the mechanical press is preferred, because of its ability to withstand the break through shock characteristic of these operations. If the hydraulic press were employed, these same operations prove quite destructive, resulting in greater protective maintenance. The open backed inclinable, permanent inclined, C or open throat vertical cap type, and the narrow, single point suspension, straight side type of frame are used for blanking relatively small pieces. For larger work, the C frame or open throat vertical and the permanently inclined press are used, the number of suspensions (either two or four) increasing in accordance with the size and design of the job. This type of press usually has an overhanging bed, i.e., a bed that is wider than the distance between the housings. When punching or blanking in the center of a large sheet or when feeding strip stock, the gap makes it possible to effect manufacturing economies. In the permanently inclined press, the incline being seldom more than 23°, the blanked parts may fall from the die into a tote box at the back of the press. This time saving feature along with the fact that the degree of incline usually does not complicate die setting, increases the popularity of this press where it can be used.

Drawing and forming operations can also be performed on mechanical blanking presses provided they are equipped with cushions. However, as these presses are limited to the extent of reduction, in most instances the hydraulic press is preferred. There are several factors that preclude the use of a hydraulic press: (1) Considerable more power is available than in a mechanical press of similar size; (2) the drawing speeds are slower, favoring greater reductions per draw; and, (3) the hydraulic press is more readily adjustable for thickness variations. On the deficit side, hydraulic presses can develop serious oil leakage, they are more diffi-



FIG. 15—The power brake, an extremely versatile forming tool, can be used for angle forming, flanging, hemming, flattening, beading, curling, and many other forming applications.

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The spinning lathe is used for bulging, necking, beading and flanging sections that have been previously drawn. As with all types of equipment used in fabricating stainless, sufficient power requirements are necessary because of the cold work tendencies of these compositions. Insufficient power in equipment often has proved disastrous and has discouraged wider use of stainless.



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 Double action hydraulic 1000-ton press with 144x84 in. pressing surfaces, one of the largest units ever built for export.

Hydraulic Standards Seen

Elimination of delay, confusion and expense resulting from attempts to follow special instructions from individual hydraulic equipment makers, as well as possibly substantial reductions in production costs are among the advantages seen in the adoption of the new hydraulic standards for industrial equipment. The author describes the background of this achievement and tells how this significant step was accomplished.

By R. R. MITCHELL

Production Engineering Section, General Motors Corp., Detroit

SOME time ago, the General Motors Corp. found need to extend its program of standardization to include hydraulic equipment. The complete lack of standard specifications for hydraulic equipment by any organization made the need for such a program more acute. In the case of electrical standards, there was already in existence the ASA War Standards, C74.1942 covering machine tool electrical standards. This work had been carried on over a period of years by the Committee on Electrical Problems of the National Machine Tool Builders' Assn. It was after the pattern set by these standards that GM began to fashion hydraulic standards.

The relative inaccessibility of hydraulic equipment on machine tools and other industrial equipment was observed by the several General Motors divisions. Inaccessibility was contributing both to high maintenance costs and actual loss of production, it was believed.

The first General Motors group assigned to study the problem was made up of Divisional Plant Engineers, who were appointed to a subcommittee on hydraulics. At the first meeting held in the spring of 1947, this group merely exchanged information on the maintenance of hydraulic equipment in the various plants.

Points covered in this discussion included the inaccessibility of pumps, valves, piping, etc., of many machines. This condition alone resulted in excessive maintenance costs. Unreasonably long

periods of downtime were being required even when only minor repairs were necessary. In many instances, breakdowns caused the loss of hydraulic fluid—not only costly but also presenting a problem of safety to personnel. At that time, design of hydraulic circuits, pumps, valves, reservoirs, piping and other equipment was at the discretion of the hydraulic equipment manufacturer, as was the installation of such equipment.

After several meetings, the subcommittee concluded that greater advantage should be taken of the skill and experience of the master mechanics of the GM manufacturing divisions. This group is responsible for machine tools, equipment and processes, and for the productivity of this equipment in all General Motors' plants. As a result, a subcommittee of the Master Mechanics' Committee was appointed to cooperate directly with the Plant Engineers subcommittee in writing the new standards, and the recommendations that were formulated represented the combined experiences of both groups.

Because the problems involved were not only those of General Motors Corp., but were industry-wide, the cooperation of other large industrial concerns was solicited to discuss possible solutions on an industry basis. The intensely competitive situation that exists in the automobile industry does not prohibit limited cooperation where mutual operating problems are involved. On numerous occasions when problems are com-

Benefiting Metalworking Industry . . .

mon to the automotive industry, these problems are discussed in open meetings called Joint Industry Conferences. Tentative hydraulic standards for industrial equipment were developed from a series of such conferences.

After tentative standards had been developed and agreed upon by these Joint Industry Conferences, representatives from a number of hydraulic equipment manufacturers were invited to discuss the provisions included. Problems concerning the user were discussed with these representatives, especially problems presented to the user by the lack of acceptable hydraulic standards. Subsequently, the manufacturers reached agreement on the program and pledged their cooperation toward the further development of mutually satisfactory standards.

Later, specialized Joint Industry Conferences were held with representatives of various manufacturers associations, including the National

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Machine Tool Builders' Assn., Hydraulic Press Mfrs. Assn. and the Resistance Welder Mfrs. Assn. Each group is supporting the proposed standardization program.

The cooperation between representatives of the manufacturers' groups and the users of hydraulic equipment has been constructive. A better understanding of the problem of each is something that cannot fail to result in beneficial changes in the design of future equipment. This plant is emphasized in the initial paragraph of the Hydraulic Standards for Industrial Equipment: "The purpose of these standards is to provide detailed specifications for the application of hydraulic equipment wherever used in industry, which will promote safety of personnel, uninterrupted production, long life of machine, equipment or tool and will not limit or inhibit advancement in the art of hydraulics."

After 14 Joint Industry Conferences held between February, 1947, and June, 1948, agreement was reached as to design and installation of many types of hydraulic equipment. These specifications, as approved at the joint meetings, were correlated, together with standard symbols and a glossary of terms. These were made available to all firms and associations participating in the development of the standards so that they could be studied before final adoption.

It will be necessary to review from time to time the standards as set up. These reviews should prove beneficial since, in addition to improving the standards, they will afford another opportunity for the hydraulic equipment manufacturer and the industrial equipment builder to better acquaint themselves with their customers' needs. The worth of the new standards will be determined in the final analysis by the extent to which the specifications are actually adopted and used. However, judging from the interest evidenced thus far by producers of automobiles and their hundreds of suppliers, broad acceptance is practically a foregone conclusion.

It is realized that delays anywhere along the production line may add substantially to the production cost of a truck or an automobile. With the increased use of hydraulic equipment, the importance of hydraulic standards both to the user and the manufacturer can hardly be overemphasized. Experience with the electrical standards have been conclusive enough to indicate that the adoption of standards for hydraulic equipment will make it possible for the industrial equipment manufacturers to substantially reduce production costs. Standardization is also expected to eliminate the delay, expense and confusion resulting from attempts to follow special instructions from each manufacturer of hydraulic equipment.

Thus, another milestone in the standardization of industrial equipment by the automotive industry has been reached. The hydraulics standards as adopted are now available in published form, and, considering the scope of the standards, remarkable progress has been made in a relatively short time.

Welding 4 to 6 pct Chrome Pipe

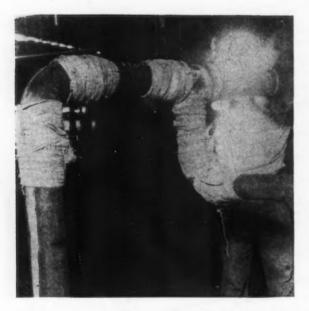


FIG I—After preheating and welding, the weld areas are heated to 1200 to 1350°F and wrapped with asbestos to a thickness of about I in. and cooled to room temperatures.

DEVELOPMENT of a procedure for welding 4 to 6 pct chrome pipe using General Electric welding equipment was announced recently by Houston Pipe & Steel, Inc., Houston. The process was devised by the company for use in the welding of chrome pipe being fabricated for installation in a large Texas oil refinery.

In the process a large preheating tip with oxyacetylene is used to bring the temperature of the joint up to 600° to 800°F and keep it there while the welding is done using chrome electrode type W-1502, ASTM-AWS specification E-502. After this, the temperature is raised to 1200° to 1350°F and the joint wrapped with asbestos tape to a minimum thickness of 1 in. and cooled to room temperature. This is shown in the accompanying illustration.

Laboratory tests by the Shilstone Testing Laboratory, Houston, showed an ultimate tensile strength of 73,200 psi, and a satisfactory rating on a 180° root bend. Brinell hardness in the weld was indicated as 248, while Brinell hardness in the pipe was 174. A Charpy Notch-Impact value of 49.0 ft-lb was obtained in the weld metal at 70°. Chemical analysis of the weld metal showed 7.73 pct chrome and 4.53 pct chrome in the pipe. Where greater ductility and elongation was required, a furnace anneal at 1600°F was given after the pipe had cooled. This resulted in an average elongation of 40 pct in 2 in.

Safety in Power Press

Operations



FIG. 1—This press guard developed by Westinghouse engineers insures against operators getting their hands between dies and at the same time permits a clear view of the operation.

THE problem of safety to personnel in power press operations is perhaps one of the most difficult problems in the entire field of industrial safety. Each press and every operation presents a separate and distinct problem because of the variations in size and design of presses, characteristics of materials used, and the wide range of objects produced. This makes it necessary to use a great variety of machines and dies.

Westinghouse Electric Corp., through its safety supervision, has made a careful study of press operations with respect to the safety of the individual working at and around the equipment. There are many factors that are important to the general problem, including equipment maintenance, guards and safe methods of feeding and ejection, inspection and supervision, instruction of operating personnel, lighting, material handling, and general housekeeping.

One recent Westinghouse development was a new type gate guard, shown in the accompanying illustration, for presses using air clutches and which are electrically controlled in operation. In other words, it can be used only where the operator must use an electric switch to engage a solenoid to start a press cycle.

The principle is to have a stop switch mounted in the danger zone of operations so that when anything touches this stop switch will close and break the operating circuit, throwing the stop circuit into use.

To accomplish this it is necessary to have a bar or barrier across the press opening (both front and back where operated from both sides) connected with the stop buttons, and to have this barrier so positioned that the least movement of it will immediately stop the ram from traveling. This was accomplished by mounting two special outlet boxes on the face of the slide and in them were positioned normally closed microswitches. These are mounted on plates that can be adjusted to give the switches the least amount of travel possible. Bearings were placed at the top and bottom of the special boxes and were drilled and reamed for a rod to pass through. This rod is concave milled where it passes the switches and the clearance between this milled part of the rod and the plunger end of the switch is very close.

The bottom end of this rod is drilled and threaded to receive additional round rods which are made up in 4 in. and 2 in. sections so that any adjustment for the shut height and travel of a press can be made. The last rod section is bent at right angles to attach the cross bar. The cross bar is of straight grained wood approximately ½ x 2 in. and of the correct length to reach across the open side of a press. It is attached to the rods with a more or less swivel or roller arrangement to allow it to float instead of being rigid.

The switches are easy to install, being wired in series with the stop circuit on the press using a flexible cable. The flexible cable is a safety feature, because if the cable breaks or grounds the press will not operate.

If anything gets under the bar and raises it more than ¼ in., it will open the micro-switches in the boxes and break the circuit to the solenoid, causing the ram to stop.

In the normal speed presses the slide stops within 2 to $2\frac{1}{2}$ in. travel after the solenoid has been closed. The slide travels this distance be-

tween the time the clutch is released and the brake brings it to a stop.

The safety bar is adjusted to hang 2 in. below the bottom of the top half of the die. This prevents the operator from working under the safety, because he must be below the opening in the die; and, if he should press the operating button while under the safety, the slide would only travel a few inches before the bar would hit his arm and stop the press.

To keep drawing compounds and oils from splashing the operator, a piece of acetate glass is clamped on the bar either the entire length or for a partial length.

The only caution that must be exercised is that the die setter must disconnect support rods when a die is installed or removed from the press. Removal of the rods takes but a moment.

There is probably no other tool used in the metal trade industry that is as badly neglected as the punch press. Makeshift repairs are prevalent and the presses are frequently run until they literally fall apart. Many serious accidents result directly from faulty brakes. A power press brake must bring the shaft to a dead stop many thousands of times a day, yet brakes are found so badly worn and oil soaked that they fail to function. Stop and clutch pins are often so badly worn as to jeopardize the safe operation of the press. Broken springs and worn latching knives and cams are common in every shop. Proper lubrication is essential to safe operation. and yet this is very often neglected or done haphazardly.

There are two general types of operations, primary or blanking operations and secondary or forming operations. On high volume blanking operations, automatic feeds should be used where possible, in which case, the point of operation can be completely closed and guarded. Air or mechanical ejection often can be used with this type of setup. Where automatic feeding is not practical and material must be fed manually. suitable projection should be provided to keep the operator's hands out of danger.

Scrap cutters incorporated in the tool will

facilitate handling and removal of scrap and reduce hazards. In some instances, adjustable stationary barriers attached to the press frame can be used. Where possible, safety features should be designed as an integral part of the die.

Secondary or forming operations are often more difficult to guard; but where the volume is sufficient and the nature of the parts permit, automatic or semiautomatic feeding methods can be used, and effective ejection methods should be a part of design. The possibility of gravity nesting or slide or dial feeding should be given serious study.

Time spent by the operator in placing or removing work from a die is wasted time and increased exposure to injury. The interlocking gate guard can be used to advantage more frequently than it is, and two-hand controls are

important in guarding presses.

Operating personnel must be instructed carefully on how to perform a job. Each step should be explained and demonstrated in detail. Care should be taken to see that the operator understands fully all possible hazards connected with the job. Many new operators have suffered serious and painful injuries shortly after they have been on a job because they didn't realize the danger. A few minutes instruction on how to do the job is an important part of any safety program.

Good lighting is an absolute necessity around the power press. Careful study could be given to augmenting available light by proper use of contrasting paints, using a light color in the throat

of the press.

Material handling is important in efficient operation of presses from the standpoints of safety and production. Substantially built stools, suitable conveyors, hoppers or pans, trays for finished parts, bins for scrap material are things that tend toward the comfort of the operator and facilitate the movement of the material.

Good housekeeping is often neglected. Proper storage of dies and tools is important. Any factors that contribute to general disorder and con-

fusion should be eliminated.

Sonic Agglomeration of Smoke and Dust

COUND waves with frequencies of 5000 to 50.-O 000 vibrations per sec have proved effective in removing pollutants from the air and utilization of the effect on an industrial scale is practical, according to Dr. H. W. St. Clair, U. S. Bureau of Mines Eastern Experiment Station, College Park, Md.

Intense sound, capable of floating lead shot in the air, causes tiny dust and smoke particles to assemble in thin, cohesive wafers which will settle out of the atmosphere. The wafers form at intervals equal to ½ the wave length of the sound. Time for agglomeration varies from a few seconds up to 10 or 15 sec, depending upon the size and concentration of the particles.

Speaking at the recent national meeting of the American Chemical Society in San Francisco,

Dr. St. Clair attributed sonic agglomeration to a complex array of forces. One theory explains the effect in terms of the increased rate of collisions between particles resulting from the frenzied movement of the particles which is produced. Other forces similar to the phenomena which explain the curve of a baseball are also involved.

The most effective frequency is the upper audible range, approaching 18,000 vibrations per sec. Sound of this general frequency can be attentuated so as not to cause objectionable noise, and in many cases the frequency can be raised above the audible range.

Experiments using powerful sound generators to clear tubes filled with smoke of various types, fogs of oil and water, quartz dust and other common air pollutants have been carried out.

New Production Ideas . . .

Punch presses, profile and surface grinders, a precision bench shaper, a tube end finishing machine, grinding and milling machine attachments, a jolt pin lifter, arc welders, stainless steel electrodes, vibrating screens, a dust control unit, a light signal device, a ceramic surface plate, and several material handling units are featured in this issue.

ARGE, bulky jobs as well as regular punch press operations can be performed on a new 5-ton Rousselle deepthroat press. The press has a 12-in. throat and is



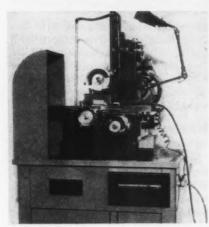
available in bench and floor models. The frame is a heavily ribbed semisteel casting, providing rigidity and strength. A large, heavy duty clutch can be set for single stroke or continuous operation, and the press operates at 250 strokes per min. The OG bench model, complete with motor, weighs approximately 550 lb. Service Machine Co. For more information, check No. 1 on the attached postcard.

Profile Grinding Machine

DESIGNED for high-speed precision grinding of internal and external contours and for curved, odd and irregular surfaces, a bench type profile grinder can be adapted to the grinding of die clearances, sharpening cutter dies and punches, grinding cams and finishing hardened steel parts. A collet chuck permits easy removal and insertion of grinding wheels and provides true running of the wheels. A diamond wheel dresser is built-in. A compound tilting mechanism tilts the work table 30° to front and 15° to side permitting a wide range in grinding compound curves and angles. Vertical adjustment is $3\frac{1}{4}$ in. Two models for mounted stone and carbide wheels differ only in spindle speed. Rice Pump & Machine Co. For more information, check No. 2 on the attached postcard.

Surface Grinder

A NEW surface grinder designed for tool makers and small parts grinding is so sensitive that it is said to split 0.0001 in. yet can

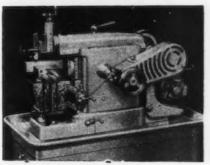


be used for heavy roughing. It has variable wheel speeds to give maximum flexibility, and grinds with wheel diameters from 1/16 to 5 in. or more. A coolant system permits the coolant to flow on the work from almost any angle. All parts exposed to wear, ways, gibs and lead screws, are hardened and ground high-carbon, high-chrome steel, and fully protected by dustproof and waterproof guards. Jakobsen Tool Co. For more information, check No. 3 on the attached postcard.

Precision Bench Shaper

A NEW 7-in. bench shaper for toolroom and industrial use has main castings of close-grained semi-steel. The ram and table slides

are milled and hand-scraped for precision fit and are provided with adjustable gibs. All gears are machine-cut from steel or gear fiber for smooth, quiet operation. The ram is 18 in. long with 0 to 7 in. stroke adjustable by a handwheel. Cutting speed is variable from 3

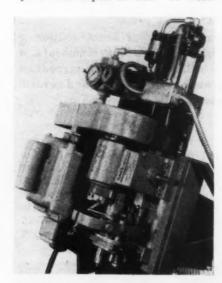


to 114 fpm. Stroke rates of 42. 75, 120 and 195 per min are obtained by shifting a V belt on 4-step cone pulleys. The tool head has a 3-in. feed, swivels to any angle, and has a positive lock. The tool post takes tools with 3/8 x 7/8 in. shanks. The work table is 57/16 x 5 x 6 in. Horizontal table travel is 9½ in., vertical travel is 5 in., and maximum distance from table to ram is $5\frac{1}{2}$ in. A 1/3 hp, 1725 rpm motor is required for power. South Bend Lathe Works. For more information, check No. 4 on the attached postcard.

Tube End Finishing Machine

AUTOMATIC air operation is available for simplified, high-speed tube deburring and other end finishing operations on the Series 600 tube and rod end finishing machine. The small bench model uses a foot switch operated air cylinder with hydro-check control to leave the operator's hands free to handle work up to 2-in. diam at production speeds of 800 to 1200 tube ends an hour. Chuck and work-feed action is taken from direct pull of the

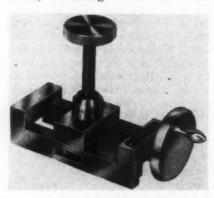
air cylinder, which provides rapid forward and reverse travel of the work to the tool with an adjustable, hydro-check to control the feed speed and depth of cut. A work



positioning stop and adjustable, positive, depth-of-cut stop combine to provide accurate operation. Eight spindle speeds are obtained from the step sheave V-belt drive. Pines Engineering Co., Inc. For more information, check No. 5 on the attached postcard.

Wheel Dresser

ANEW Model A wheel dresser l eliminates stopping the machine, removing work from the

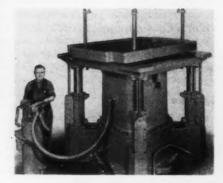


chuck and lowering and raising the wheel head in dressing wheels from 13/8 to 41/4 in. wide. With this attachment, the operator can dress a wheel while grinding. It dresses parallel with the chuck. Matco Tool Co. For more information, check No. 6 on the attached postcard.

Jolt Pin Lifter

HEAVY duty, jolt pin lifter weighing 11 tons has been designed to eliminate squaring

shafts, linkages and cranks. Its rigid integral frame is actuated by four equally spaced pistons. A lift piston fitted into the base pushes upward against the solid one-piece lifting frame. Four hardened and ground pins level the strip frame at the start to guard against binding and hydraulic power on the lifting frame insures smooth performance. A slow draw valve is adjustable for speed and length of draw. The machine has a solid, true jolting action and a precise controlled pattern draw. The jolting capacity with an 18-in. jolt piston is 10,000 lb at 90 psi line



pressure. An hydraulic strip has 7000 lb capacity. The table is 85 x 54 in., with a pin width of 51 in. max and 38 in. min. Milwaukee Foundry Equipment Co. For more information, check No. 7 on the attached postcard.

Stainless Steel Electrode

HE new 316-CF stainless steel electrode has been developed to weld type 316 ELC stainless steel. With the low amount of carbon-0.03 pct maximum—in the parent metal and electrodes, it is possible to practically eliminate intergranular corrosion in the zone adjacent to the weld and in the weld deposit because carbide precipitation is prevented. Physical properties as welded are: Tensile strength, 85,000 to 95,000 psi; elongation in 2 in., 40 to 50 pct. Champion Rivet Co. For more information, check No. 8 on the attached postcard.

Arc Welders

NCREASED welding range and stepless precision current control feature a new line of ac arc welders, available in 200, 300, 400 and 500 amp models for indoor manual welding; 750 and 1000 amp models for machine and submerged melt welding; and a special 200 amp model for light-duty, job-shop welding. Dual current ranges and increased adjustment overtravel provide extra low current range with high maximum short-time output. Stepless current control, operated by a bearing mounted current adjustment crank, enables the operator to make precision settings throughout the current range. An open-circuit voltage of 75 v provides good welding performance through added arc stability. Idlematic controls on the weather-resistant models of 300, 400, and 500 amp automatically reduce the open circuit voltage on the electrode to about 30 v but when the arc is struck the advantage of 75 v open circuit voltage is retained. welders have steel housings. Updraft, fan-assisted ventilation pro-



vides cool operation. General Electric Co. For more information, check No. 9 on the attachedd post-

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Electric Immersion Heaters

S TAINLESS steel or Inconel Chromalox electric immersion heaters can be used for heating a wide range of industrial chemicals, alkaline cleaners, extra-heavy degreasing solutions, oils of high sulfur content, and many corrosive liquids that do not attack stainless steel or Inconel. These new heaters are hair-pin shaped heavy duty Chromalox tubular elements welded into a solid screw-plug with 2-in. standard pipe thread and a heavy 3-in. hex section. The heating elements are die-pressed to a patented triangular cross-section to obtain high mechanical strength and a more dense refractory. The heated length of the element ranges from

106-THE IRON AGE, April 7, 1949

12 to 50 in. Ratings from 1 to 15 kw are available in voltages of 230, 460, and 550, single phase. Edwin L. Wiegand Co. For more information, check No. 10 on the attached postcard.

Dust Control Unit

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USED for the collection and control of dust generated in manufacturing and process operations, the type N Roto-Clone has been re-designed to permit wider application and improved performance. It is a hydrostatic precipitator that cleans the air by the combined action of centrifugal force and a thorough inter-mixing of water and dust-laden air, re-using the water without recirculation pumps or spray nozzles. The new



Roto-Clone, with capacities through 48,000 cfm, maintains a lower pressure drop with the same cleaning efficiency and water recirculation rate and can be operated from 50 to 120 pct of its nominal rating without affecting its collecting efficiency. All sizes are available with either manual clean-out, sludge ejector, or hopper bottom arrangement. American Air Filter Co. Inc. For more information, check No. 11 on the attached postcard.

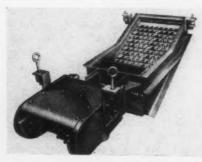
Punch Press Pitman

A NEW style punch press replacement pitman, adaptable to all punch press cranks, protects overload on 25 to 250-ton capacity presses during the work cycle. The pitmans are in stock and the throw bearing, including the ram connection, are machined to size and specifications for fitting individual presses. These hydraulic jacks not

only protect the press bed crankshaft and the press bed frame from damage, but can be calibrated to assure maximum protection to fragile dies used in the press. Dayton Rogers Mfg. Co. For more information, check No. 12 on the attached postcard.

Vibrating Screens

V IBRATING screens for rough sizing are made with stepped, punched plates having tapered, elongated openings, the size depending upon material specifications. Single or multiple deck screen plates are available. The



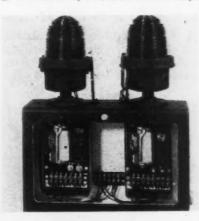
screen area is activated by the Vibra-Flow vibrating motor featuring variable control of material flow. This provides a two-purpose piece of equipment, a vibrating screen and a rheostat controlled vibratory feeder, which increase the efficiency and capacity of crushers and fine grinders and prevent damage to belt conveyers by allowing the fines to cushion the lumps. Syntron Co. For more information, check No. 13 on the attached postcard.

Grinding Attachment

F OR surface and 5-in. deep cavity grinding and polishing, a new, high-speed attachment for flexible shaft machines increases speed of the Nos. 2 and 4 Haskins machines to a ratio of 2:1. It offers a means for grinding and polishing welds in inaccessible places and permits use of small rubber and resinoid bond grinding wheels up to 25% in. diam. The molded round belt is amply guarded and offers a convenient hand-hold for sensitive grinding with less pressure. R. G. Haskins Co. For more information. check No. 14 on the attached postcard.

Light Signal Device

A NEW self-contained light signal device to be used with the P&W Model D electrolimit continuous gage signals the operator of a rolling mill continuous inspection line or a shear by means of lights when the strip material is off gage. It can also be used to control an external circuit for classifying. The device consists of one red and one green lantern, two electronic relays



and a suitable mounting case. The limits are set on the contact meter and when these plus and minus limits are exceeded, an electric contact is made through the relays thus providing a control circuit that can be used in controlling mechanisms and lighting lights. Pratt & Whitney, Div. Niles-Bement-Pond Co. For more information, check No. 15 on the attached postcard.

Ceramic Surface Plate

A NEW ceramic surface plate has been designed for use in toolrooms and inspection departments where precision setups and checking measurements require the highest degree of accuracy. The plate



affords three advantages: extreme wear-resistance, a precisely flat surface guaranteed to be within 0.0001 in., and a continuously smooth surface finish. Field trials conducted on this plate reveal an almost complete absence of wear either to the plate or to gages and instruments used on it. The plate will not warp or deform, expand or deflect upon load. Its smooth semiglossy surface is neither slippery nor sticky and has been proven

suitable for blueing. The plate is non-magnetic, will not sweat or corrode under any atmospheric condition, and may be cleaned with soap powder and water. Norton Co. For more information, check No. 16 on the attached postcard.

Oil Circulating Drill Head

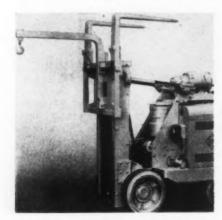
A FIXED center oil circulating head for high speed drilling machines has 34 spindles in a 6-in. square head. It eliminates oil seals



and other rubbing parts and is fully ball bearing equipped. Idler shafts are mounted on ball bearings at each end of the shaft. The head contains an oil pump with a builtin, trouble-free vane type pump that pumps the oil to the top of the head and by centrifugal force spreads it over its entire upper surface. It then cascades down over the bearings and gears. All spindles and shafts are made of alloy steel heat-treated and ground. The head is reported to have been operated successfully at 10,000 rpm with very little heat. U. S. Drill Head Co. For more information, check No. 17 on the attached postcard.

Fork and Boom Attachment

A FORK and boom attachment in one unit for industrial trucks has three main parts: A

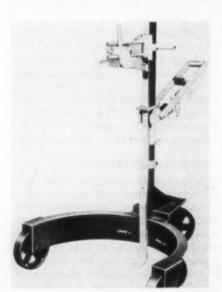


base member that is attached to the truck's lifting mechanism and rides in the upright tilting columns;

the fork tines suspended from a bar supported on the base; and the boom. The boom is a solid, alloy steel heat-treated bar bent at right angles near the middle of its length. The part that engages the base slides into brackets and a base socket where it is held vertically and firmly in place. The boom may be detached when forks are to be used alone. The fork tines are swung upward and backward when the boom is required by itself. The boom illustrated extends 36 in. horizontally from the base. Fork tines are 36 in. long. The maximum height of the lift of the boom hook from the floor is 30 to 145 in. Maximum height of fork is 117 in. The truck's rated capacity is 4000 lb. Elwell-Parker Electric Co. For more information, check No. 18 on the attached postcard.

Drum Carrier

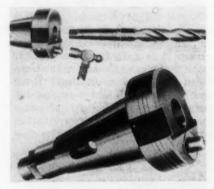
LiftING, carrying and depositing 800 to 850-lb drums and barrels in 50 to 60-gal sizes without human hands touching them is possible with a three-wheel hand truck, the Drumobile. It picks up the container, carries it in a level, up-



right position and deposits it gently without tilting. Open containers may be carried without risk of spilling, even when brim full. The lever-handle after serving its function in lifting the load and actuating the safety lock, becomes a vertically free-swinging steering column adapting itself to any desired height. Ernst Drumobile Div., Brantwood Products, Inc. For more information, check No. 19 on the attached postcard.

Milling Machine Adapter

T OOL changes in milling machine operations can be accomplished in a matter of seconds with a new Harding rotary adapter. Tools are ejected by tapping the release button located on the face of the adapter. The ejection is effected by built-in hydraulic force. The adapter will fit any milling



machine spindle and will hold any tool having a Morse taper shank. Standard holders are manufactured in both No. 40 and 50. Greenville Tool & Die Co. For more information, check No. 20 on the attached postcard.

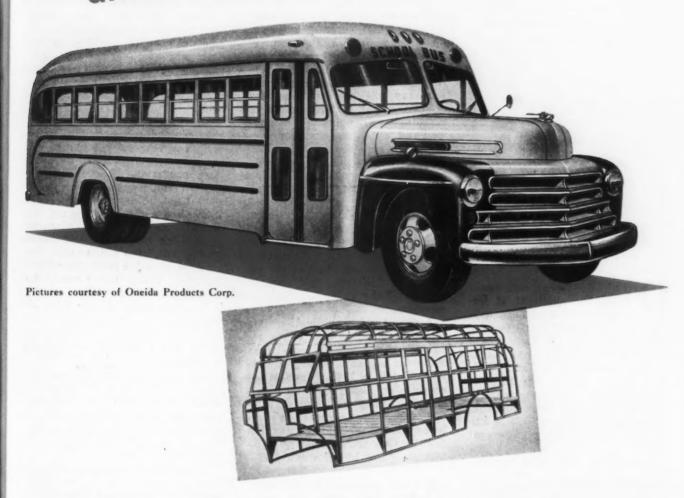
Clamp Truck

R AST, convenient handling of such bulky items as oil drums, barrels, and wood boxes is possible with a new clamp truck that utilizes hydraulically operated clamp arms to grip the load for lifting and transporting. The clamp is allwelded steel with dual double-acting hydraulic cylinders and is mounted on the truck lift carriage. The control valve is mounted in the operator's compartment. Inward and outward movement of the clamp arms is regulated by a control lever.



The hydraulic system of the truck supplies oil under pressure to the clamp cylinders. Length of clamp

FRAMED and COVERED with safety



The greater strength and toughness of N-A-X HIGH-TENSILE steel permits weight savings of up to 25% in section—and still affords maximum protection against injuries from traffic accidents.

Its superior fatigue-resistance and excellent weldability prolongs this safety-factor...reduces maintenance costs over more miles and under all conditions.

If you manufacture a product requiring high strength, toughness and good weldability, it will pay you to investigate N-A-X HIGH-TENSILE.



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GREAT LAKES STEEL CORPORATION

N-A-X Alloy Division • Detroit 18, Michigan
UNIT OF NATIONAL STEEL CORPORATION

 Auto management and UAW-CIO prepare for coming negotiations
 ... Union likely to stress
 "Double Standard" and ability to pay . . . New book details recent UAW-CIO history.



ETROIT — Labor has again taken the spotlight at Detroit. Quickie strikes, usually associated with disputes over production standards, have been a source of increasing aggravation to management at Midland, Hudson, Dodge and U. S. Rubber. Chrysler has been particularly hard hit by the Midland stoppage, losing an estimated 10,000 to 12,000 cars during the past several weeks.

Meanwhile, both auto management and auto labor are busily preparing evidence for use in the coming wage negotiations. This is particularly true at Ford, first on the union list. The company has already indicated "inability to pay" will be its defense against union demands for company paid \$100-a-month pensions at age 60 (after 25 years' service) plus the payment of 5 pct of the Ford payroll to a health and security program.

In addition to its demands for pensions, the union is asking for "protection" of the pension rights of workers who die or are separated from the payroll before they are retired, administration by a board of trustees on which the workers are equally represented with the employer, and pension

payments to everyone in the bargaining unit. As in the case of pensions, health insurance is to be paid for by the employer.

According to the union, "Corporate management has been talking out of both sides of its mouth for a long time on the security problems of its workers." Union spokesmen are saying that the very same people in management who say the worker's security problem ought to be handled in Washington are going to Washington and opposing any improvements in social legislation.

They contend the right to press bargaining demands for pensions and social security have been established in the Inland case and that while management is attempting to deprive workers of the rights to bargain for health and old age securities, it is paying generous pensions to its top executives. "It's the old double standard," the union is telling its members.

A recent union publication lists the alleged salary and bonus received and pension provisions made for top automotive corporation officials in 1947. Nine GM executives are listed showing provisions of annual pensions of \$25,000 each. The corporation's alleged contribution to the pension fund ranges from \$5,400 to \$18,300, according to union sources.

NNUAL pension provisions A have been made, the union says, for five top Studebaker officials; eight Chrysler officials; four top Nash executives. Other companies included in the union-prepared list are Motor Products Corp.; Eaton Mfg. Co.; Minneapolis-Moline; and Consolidated Vultee. In the case of Studebaker, the pensions range from \$7700 to \$17,500. The Chrysler pensions listed range from \$18,400 to \$25.200. In the case of three Chrysler executives, the union is careful to point out that no corporation contribution has apparently been made.

According to union spokesmen, management is opposed to pensions for its workers because this security robs them of the incentive to work hard. "It is different for the men who put their feet up on the desk in walnut paneled offices," the union asserts.

Union spokesmen are telling their members that the amount of pension benefits payable in the first year of the proposed UAW pension plan would be less than companies now set aside for depreciation on plants and equipment.

They are also insisting that the auto companies spend millions of dollars a year on newspaper advertisements, magazines, ads and radio programs.

"Men and women in the shops should not be deprived of proper medical care and adequate old age benefits to subsidize glamour girls, slick magazines and radio propaganda," the union says. The union publication continues: GM's Henry J. Taylor never would be missed and the UAW member who is worried about doctor bills or dependency in old age isn't much concerned whether you step down or up into a Hudson or get into it sideways.

The union has also advanced the argument that in 1940 for every dollar the motor vehicle industry spent on wages and salaries, it spent 48¢ for repair and depreciation of its machinery and to advertise its products.

"It cannot in justice spend huge sums of money for depreciation, machinery repair and advertising and at the same time deny the union's demands for help and old age benefits for its workers." The union is contending as always that out of its earnings, the auto industry could grant the UAW-CIO 1949 pension demands, maintain prices and still earn more than an adequate return on its investment.

OBSERVERS here predict elaborate statistical demonstrations of union statisticians will be made again this year to show that automotive profits during 1948 were at a rate of 20 pct or more a year on the stockholder's investment.

The union case concludes as



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follows: "Corporations provide for every contingency, including the breakdown and old age of each punch press, furnace and tool; but they plan simply to use and dispose of every worker like a paper towel when he's too old to work but too young to die."

Thus, it appears that the wage tug-of-war in Detroit this year will be a contest in which alleged inequality of the worker will be matched against ability to pay. Obviously, the two viewpoints are miles apart since the union is steadfastly maintaining that earnings are easily adequate to do the job without raising prices while management insists that profits are not nearly adequate to meet even a fraction of the union demands.

Local observers expect one of the most spirited negotiating periods in the history of the industry during 1949. The possibility that John L. Lewis may add fuel to the Detroit fire is not being overlooked here.

MCIDENTALLY, one of the most significant books on the Detroit labor situation has recently been published by the Viking Press. The author is Clayton W. Fountain, a member of Walter Reuther's staff. Book title is "Union Guy."

The book does not represent the official viewpoint of the union, but it is a well documented story of the unionization of a Detroit worker. Mr. Fountain's career in labor has been far from dull: he

was sucked into the Communist Party, broke away from Commie nomination and through energetic application to his job has risen to a responsible position on the union staff.

In his book, Mr. Fountain gives some interesting information about Commie infiltration in the union, the intense factionalism within the UAW-CIO and the broad aspects of Walter Reuther's plans for labor.

Here is an interesting sample of the discussion on communist operations within the framework of the union:

"In Local 235, working through our growing units of comrades, we lost no opportunity to heckle the Martin followers who controlled the local executive board. We held party caucuses before and after all union meetings. Sometimes I was called into skull sessions with the higher-ups of the party to get the fresh line from the commissars.

A7 HEN our opponents objected to the injection of (resolutions to carry out the party line) we wore them down in a number of ways. For one thing, we had superior speakers. Our boys not only attended all the union educational classes they were eligible to participate in, but also took lessons in speaking from party experts. We were also trained in the fine points of parliamentary trickery. Sometimes our knowledge of parliamentary procedure was enough in itself to impress the unschooled workers at

union meetings—they backed our proposals with the conviction that such learned fellow workers must know what was right for the local.

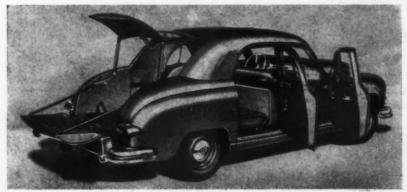
"On other occasions we raised points of order, points of information, divisions of the house, objections to consideration of the question, amendments to the amendment, and appeals from the decision of the chair in endless and swift succession. After 2 or 3 hr of shouting and confused exchanges of parliamentary thrusts with our less skilled opponents, many of the union members left the meeting in sheer disgust and weariness.

"The comrades and their cohorts stayed on in such disrupted meetings until the voting odds were in their favor; then the party line resolutions and motions to contribute funds to CP front outfits passed the meeting with machine-like precision."

Once the Commie Party gained control of an organization, Mr. Fountain points out, it uses all these tactics in reverse and denies the opposition its Democratic rights. Packed committees, stolen elections, physical violence, holding union meetings and elections miles away from the shops—these are the tactics employed by the parties who maintain control of locals in their power.

In the course of his activities with the Communist Party, Mr. Fountain was twice put in jail. In his book, he describes many of the favorite tactics of communist organizations. He also gives the names of communist leaders active in Detroit around 1937. Anyone wishing an insight into the internal workings of an energetic labor union like the UAW-CIO will find Clayton W. Fountain's book a highly interesting source of information.

ROOM FOR EVERYBODY: Shown in the photograph is the new Kaiser-Frazer Traveler, one of two new utility cars which combine the features of a station wagon and a 4-door sedan. A collapsible seat arrangement allows the rear passenger cushions to be folded away in a matter of seconds to convert the car for cargo hauling. Instead of the conventional single trunk lid, the Traveler has two large hinged panels. The lower section drops downward to provide a tail gate while the top half lifts out of the way.

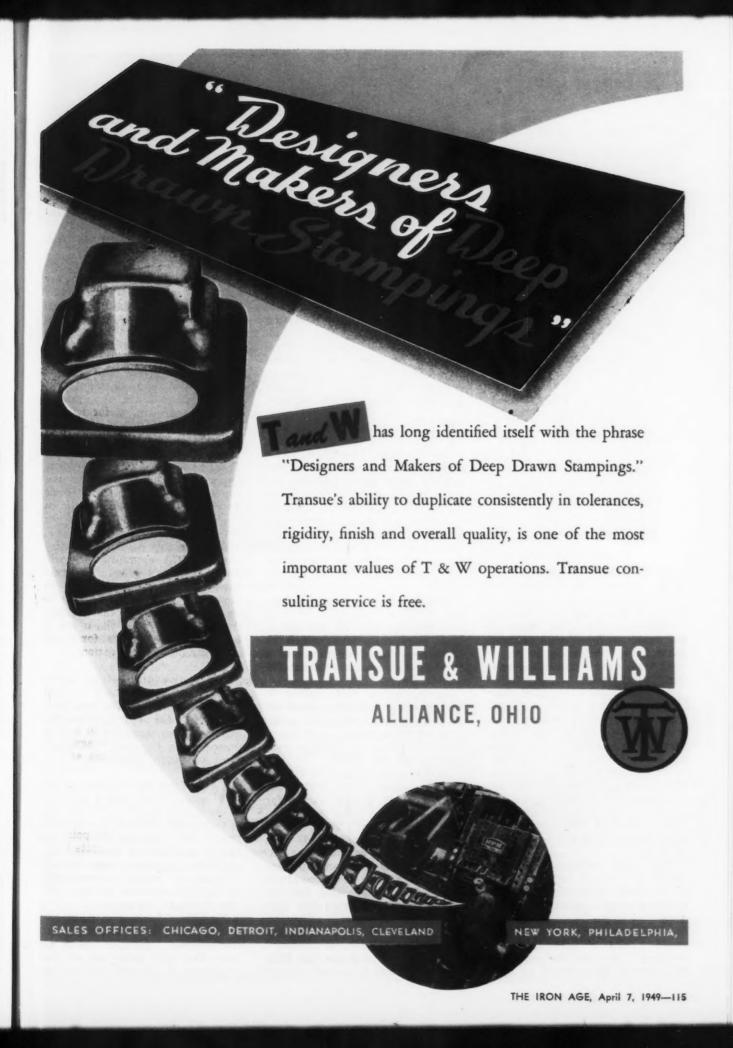


Record Truck Inventories

Chican

• • • In the opinion of E. J. Bush, president of the Diamond-T Motor Co., the number of motor trucks in the hands of dealers and in factory branches is probably at the highest point in the country's history.

Bush said that there is now a buyer's market for everything but light trucks. Orders for buses have aso dropped off this year, it is indicated.



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• ECA financing to provide 60 pct of western Europe's 1949-50 imports... Steel requests small... NSRB drafting standby emergency War Power Act for submission to Congress.



ASHINGTON—Very noticeable progress has been made toward recovery by Western Europe over the past year. Nevertheless, Marshall Plan countries are depending upon ECA-financed goods for approximately 60 pct of their total imports during the coming 1949-50 fiscal year.

This much has been made clear in the extension bill under consideration by the Congress. As it stands, the 15 nations taking part in the program expect to do an import business for the 12-month period amounting to about \$6.4 billion. Exclusive of the cost of running the ECA program, aid to dependencies, etc., it is expected that about \$3.7 billion worth of actual commodities will be financed by ECA.

Despite the emphasis which has been laid upon the industrial side of European recovery, under the projected program laid out for Congressional inspection less than half the anticipated imports, or 45 pct, would consist of industrial commodities. However, the requested aid through ECA would be split

about 50-50 between industrial goods and the food-agricultural types of commodities, including fibers, textiles, etc.

Anticipated imports by the ECA nations call for only \$139 million worth of iron and steel, of which \$100 million would be obtained through ECA. On the other hand, the largest single category of goods requested by ECA consists of \$840 million worth of steel-consuming machinery and equipment, including agricultural equipment. Two-thirds or about \$560 million worth of the total would be purchased through ECA and would consist mostly of American-made products.

THESE requirements are now seen as having a negligible effect on the overall domestic economy insofar as steel is concerned. For one thing, steel demand is easing on the home front. For another, because of the time lag between authorizations and actual completed shipments, by the time next year's authorizations are delivered the domestic steel situation should generally be well in hand.

Spelling out the present situation, ECA authorizations of steel mill products to date amount to little more than \$105 million as against completed shipments of a third of that amount or about \$30 million.

Again, nearly \$400 million in authorizations has been issued for purchase of machinery and equipment. Paid shipments as of March 1 were reported by ECA as running around \$80 million.

This time lag is general for the ECA program (THE IRON AGE, Mar. 10, 1949, p. 155) except for foods and some other non-industrial commodities. Thus, a majority of shipments, and even orders, are far behind authorizations. This has been an important factor in creating some opposition in Congress to granting the full amount of money asked this year by ECA.

In addition to underwriting the \$3.7 billion needed for procurement of Marshall Plan goods, the ECA would also have to put up another \$600 million for shipping costs (\$300 million), direct aid to European colonies and dependencies, administrative expense, etc. This would make the total estimated cost to the American taxpayer next year amount to about \$4.3 billion.

S OME congressmen, however, are endeavoring to whittle this amount down to around \$3 billion. They argue that the ECA should first use up the funds which have been appropriated before getting more.

As a result of the span between authorization and shipment, the unspent ECA funds appropriated for last year are variously estimated at from \$1.7 to more than \$2 billion. Furthermore, they seem likely to remain at such levels. Those backing a smaller appropriation say that this amount, plus new appropriations of \$3 billion, would provide ECA with a minimum working capital of \$5.7 billion for the coming year.

How far this move for reduced 1949-50 ECA appropriations will get is anybody's guess. But most observers here believe that although a few trifling cuts may be made here and there, the administration majority will likely see to it that ECA gets most of the amount requested.

A tentative draft of an Emergency War Powers Act is now being worked out by the legal staff of the National Security Resources Board. When completed, it will be presented to Congress for enactment as standby legislation.

WHAT the Board hopes to accomplish by such a move is to provide a legal basis for its M-Day plans—that is, to provide that if war ever comes again, its M-Day mobilization plans and the emergency agencies needed for administration would automatically spring into existence without further action by Congress.

The Board hastens to point out that if placed on the statute books, its proposed legislation could go into effect only under one of two conditions—a formal declaration



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Here's a simple MonoRail loop with carriers and "kicker" switches that really speeds up leatherdrying.

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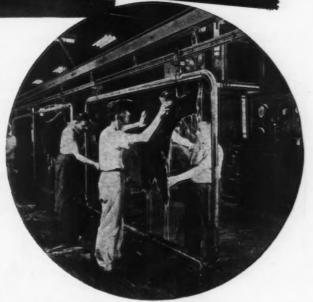
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Sides or skins are pasted on glass plates in carrier frames suspended from a MonoRail track; all unnecessary manual handling is eliminated. After the wet leather is pasted on glass, the carrier moves through the dryer without rehandling and the dried leather is stripped from the glass plate for further processing.

An automatic switch transfers the carrier from single to double line travel through the dryer. After the leather has been removed, the carrier is automatically transferred from double to single line travel through the plate washer and pasting stations.

This is just another example of the simplicity of MonoRail application that most economically correlates transfer and processing operations. An American MonoRail engineer can show you how you can increase production and lower costs with American MonoRail Overhead Handling.



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THE AMERICAN ON OR A COMPANY

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THE IRON AGE, April 7, 1949-117

of war by Congress itself, or a presidential proclamation that a state of war exists.

In other words, the Board wants to prevent the chaotic situation following Pearl Harbor and to head off delays which attended organization of the WPB, OPA and other World War II agencies. These are provided for in the M-Day plans and under the legislation could go to work immediately on the outbreak of war.

As now being drafted, the proposed legislation would have at least 20 titles. These include provisions for priority and allocation controls, power for government requisitions, authority for plant seizure, exemptions from antitrust laws for the duration, price and wage controls, emergency contract authority and renegotiation powers, authority to settle labor disputes, and other varied responsibilities.

Much of this proposed legislation is still in the hatching process and those in charge are reluctant to discuss it in detail. But the provisions now down in black and white have been worked out in cooperation with attorneys from other government agencies as well as representatives of industry.

Supreme Court's Decision Expected On Legality of Freight Absorption in Industry

Washington

• • • • The Supreme Court last week heard oral arguments on the pros and cons of delivered prices and began consideration of the controversial issue that now appears to be approaching final settlement.

The question of whether or not freight absorption may legally be employed in steel and scores of other industries will probably be answered by the high court some time this year. Broadly speaking, the court may find (1) that freight absorption is legal, (2) that it is illegal, or, (3) that it is legal if employed under certain specified conditions.

The case argued last week involves an order of the Federal Trade Commission against freight absorption as practiced by the rigid steel conduit industry. Lower courts have upheld FTC in its contention that identical delivered prices in the industry are in violation of the federal antitrust statutes.

FTC's order is directed against 8 producers who manufacture the product they sell. These firms are Fretz-Moon Tube Co., Inc., Enameled Metals Co., General Electric Co., Laclede Steel Co., National Electric Products Corp., Spang Chalfant, Inc., Triangle Conduit & Cable Co., Inc., and Youngstown Sheet & Tube Co.

The order is also directed against 4 companies who sell conduit made for them by one or more manufacturers. These 4 firms are Clayton Mark & Co., M. B. Austin Co., Steelduct Co., and Republic Steel Corp.

All these producers told the court last week that they are contending "only for the preservation of their right—individually and without agreement—to continue to carry on their businesses in areas in which they always have been carried on; and for the right not to be excluded from those areas by artificial barriers erected by the FTC."

The producers told the court that FTC's order to stop absorbing freight is not only not required by Congress, but also is in "direct conflict" with the theory of free competition underlying all of the antitrust laws.

Enforcement of the FTC order would not merely regulate, but would destroy, a large part of the business of the steel conduit producers, the court was told. The producers said that enforcement of the FTC order would prohibit the independent use of "lawful commercial practices."

Counsel for FTC, on the other hand, told the court the Sherman Antitrust Act gives the commission power to halt practices "which produce, or are likely to produce, restraints and monopolies against which the antitrust laws are directed."

"Petitioners' (conduit producers') practices not only threaten to, but do, suppress price competition, one of the foremost evils which the antitrust laws are designed to prevent," FTC declared.

THE BULL OF THE WOODS

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ROLLS THAT KEEP ROLLING LONGER

Ohio Rolls are mighty rugged. Careful study and experimentation have made them that way. The strength and superior wearing qualities of Ohio Rolls are features of continuous research and testing.

Select from any of these eleven types of Ohio Steel and Iron Rolls: Carbon Steel Rolls, Ohioloy Rolls, Ohioloy "K" Rolls, Holl-O-Cast Rolls, Chilled Iron Rolls, Alloy Chilled Iron Rolls, Denso Iron Rolls, Nickel Grain Rolls, Special Iron Rolls, Nioloy Rolls, Flintuff Rolls.

THE OHIO STEEL FOUNDRY CO.



 Scrap price decline in West laid to large stocks, imports and reaction to Eastern slump ... Further indications of softening steel market come from Utah.



SAN FRANCISCO — Bulging scrap stocks at the plants of principal western producers, stepped-up receipts of overseas scrap, and the price decline in the East gave ample warning to dealers and brokers in the West of the price dip which became effective Apr. 1.

Prices for No. 1 and No. 2 heavy melting and No. 1 and No. 2 bales declined an average of \$4.33 per gross ton as against the national drop last week of \$3.75 per gross ton. However, this comparison is not directly applicable since former West Coast prices had been made f.o.b. shipping point and beginning the first of this month buyers reverted to the prewar custom of demanding that the price include delivery to the consuming point, which had been abandoned about 2 years ago.

While principal scrap users refused to give exact information as to tonnages in their scrap yards, physical evidence indicates that all of them have ample supplies for at least 3 week's operations without additional purchases and what little buying is being done is in relatively small lots. Bethlehem Pacific Coast Steel Corp. is definitely out of the market in the San Francisco area

for some weeks and is buying only in limited amounts in Seattle and Los Angeles. Columbia Steel Co. has suspended all shipments of scrap for about 2 weeks although purchases are still being made for future shipments. Kaiser Co., Inc. is buying only in very small lots for its Fontana, Calif., plant and minor producers here are following the same general practice.

Dealers caught in this latest price drop look unhappily at the net available to them after paying the shipping cost to buyers' plants. Freight on heavy melting scrap is approximately \$4.00 per ton from several important collection points to the nearest steel furnaces which means that collections in the hinterlands will come to a stop. Farmers and others in the outlying areas are lucky to get \$5.00 to \$8.00 per ton for scrap almost completely prepared for the furnaces and dealers doubt that they can expect much material to originate under those circumstances.

Last week ships at Seattle, Richmond, Calif., and Los Angeles were each unloading approximately 9000 tons of scrap collected in the Pacific and it is estimated that approximately 30,000 tons of this material had been landed on the Coast during the past month. While no accurate figures are available, it is reliably estimated that approximately 75,000 to 100,000 tons of overseas scrap is expected to be delivered on the Coast within the next 2 or 3 months.

COST of this overseas scrap is a factor which has caused at least one buyer to try to wiggle out of a contract on the grounds that delivery schedules were not adhered to. This action is understandable in view of the fact that reliable authorities believe the cost of such material laid down at Coast ports approximates \$40 per gross ton, against the current price for No. 1 heavy melting of \$22 per ton delivered to the consumer.

There is also some dissatisfaction over the quality of the scrap arriving from Japan and there are rumblings which indicate western buyers may not be entirely happy with some of the commitments made by officials in the East.

Along with price cuts buyers are being much more selective in their purchases and the lowly No. 8 bale which, until recently, was considered fair game, is practically out of the market although a price of \$15 per gross ton is quoted.

This latest sweeping price reduction on the Coast follows that of 6 weeks ago when No. 1 heavy dropped from \$27.50 to \$25 per gross ton f.o.b. shipping point. In other words No.1 heavy melting has dropped \$5.50 within the past 6 or 7 weeks, but the dealer is losing considerably more than the \$5.50 differential indicated because he now pays the shipping cost.

West Coast Export Men See European Competition

Los Angeles

• • • Export dealers in southern California report European competition in the sale of steel to Far Eastern countries is beginning to return for the first time since before the war.

Commenting on the reports, Paul G. Hoffman, European Recovery Program Administrator and former president of the Studebaker Corp. indicated that competition will increase even more when governmental red tape so prevalent in many European countries is cut further.

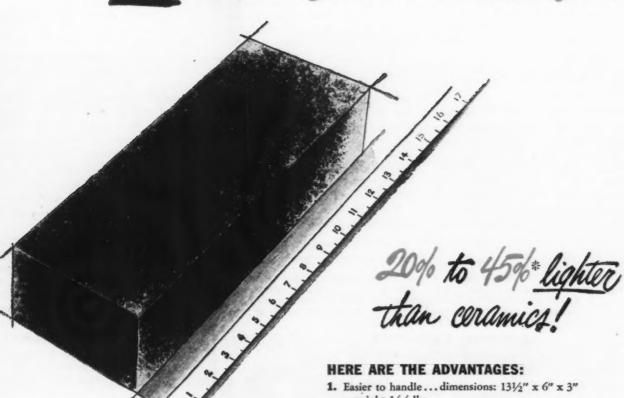
"European production is increasing," Mr. Hoffman observed.
"European exports of steel will offer heavy competition in all parts of the world and will help in cutting U. S. aid by building up countries abroad," he reported further to The Iron Age.

"Naturally facilities are limited and types of production are comparatively few. Some difficulty is experienced in obtaining raw materials." he added.

The former auto manufacturer opined that United States capital investments of most sorts in Europe still are poor risks. Up for study by congress, however,

have you tried?
"national" Carbon?

a new 13/2" Carbon Brick



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- -weight 14.4 lbs.
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OTHER NEW BRICK SIZES:

Key brick 131/2" x (6"-5") x 3"-weight 13.2 lbs. Straight brick 9" x 6" x 3"-weight 9.5 lbs. Key brick 9" x (6"-53/8") x 3"-weight 9.1 lbs.

For more information, write to National Carbon Co., Inc., Dept. [A

*Weights in lbs. per cubic foot of carbon vs. ceramic brick: Carbon—96, Firebrick—120-130. Acid-proof brick—148. Chrome brick—175-180.

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probably will be the question of whether it is sound United States public policy to assume political risks on investments all over the world. "Political risks," he emphasized, "do not include business risks."

In the Far East and South America, competition in the sale of bars has increased because of lower prices offered by France and Belgium. Previously, the European countries could offer only delivery in the future. Orders from these two countries placed months ago are being filled now, however, offsetting the advantage of quicker delivery offered by local exporters.

As an example of the competition, one exporter said he recently quoted a price on 900 tons of ½ in. wire rod with only a 3 pct margin over the U. S. Steel price. He lost the deal, however, when Belgium wire rod became available and then Japanese nails were offered for sale against the Belgium wire rod price.

Roberto Regala, Consul General for the Philippine Republic, reported here that during the first 6 months of 1948, his country imported from the United States goods totaling \$266 million and exported here only \$109 million, a favorable balance for this country of \$157 million. Before the war

U. S. Foreign trade with the Philippines totaled only \$181 million per year.

Western Airframe Makers Doing Better Financially

Los Angeles

• • • Indicating that government contracts have put airframe manufacturers over their financial humps, for a while at least, western aircraft companies financial reports show substantial profits as compared with large losses a year ago.

Douglas Aircraft Co. reported for the fiscal year ending Nov. 30, there was a net profit of \$5,829,-206, as compared with a loss of \$2,140,579 for the same period a year earlier. The profit was equal to \$9.71 a share of outstanding capital stock.

More than 97 pct of a backlog of \$232,989,000 was for military planes, with Air Force orders accounting for 43 pct mainly in the giant C-124 transport, and Navy orders taking up 54 pct of the total. Douglas manufactures a jet fighter and dive bomber. One of the projects now under way is to replace some of the more than 6000 DC-3s now in service.

The public report gave no breakdown for the pressed metals

division which was only in its infancy at that time.

A typical company was North American Aviation which showed a net income of \$2,780,000 for the first 6 months of its fiscal year ending Mar. 31. This compares with a net income of \$753,438 for a like time a year ago.

Consolidated Vultee Aircraft Corp. at San Diego showed a net profit of \$987,284 for the quarter ended Feb. 28, as against a deficit of \$2,765,916 in the same period in 1948. The company has a backlog of about \$190 million.

Boeing Airplane Co., of Seattle, reported its first postwar profit year, with a net of \$1,715,908 being made in 1948. The company's total sales for the year were \$127,304,661.

Included among the expenses listed in the report was a write-off of \$7,200,000 of a total estimated loss of 10.5 million on the Stratocruiser commercial transport project. This portion, it was indicated, represents the amount required to reduce the Stratocruiser work-in-process inventory as of the close of the year to estimated sales value. The remaining portion applies to work yet to be performed.

Buyers Relax Pressure

Salt Lake City

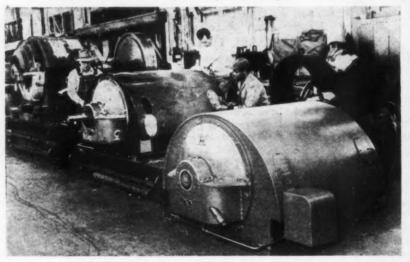
• • • Steel fabricators of this area, who a few short weeks ago were cajoling, pressuring and threatening basic producers for larger allocations, are now passing up opportunities to buy and "waiting to see what happens."

A check of major fabricators indicates that the only products now in the short supply category are plates and possibly sheets. Dr. Walther Mathesius, president of Geneva Steel Co., expects plates to be in ample supply soon.

Morris Rosenblatt, president of Structural Steel & Forge Co., reports that the Eimco group of fabricating plants received 56 carloads of steel in March. During the winter they considered themselves fortunate if they received 10 to 15 carloads.

Continued tightness of plate arises from large commitments for pipelines.

FOG FIGHTERS: Two 1000-hp electric motors, most powerful built to date at the Westinghouse Electric Corp's plant at Sunnyvale, Calif. will shortly be doing a vital job at the Los Angeles airport pumping fuel that will burn fog. The motors will drive pumps to force fuel through long lengths of pipe feeding burning nozzles along the airport's runways.





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HERE'S NEWS ABOUT TWO FAMOUS FIGHTERS:

They've come through three wars, and are now revamped to meet peace-time needs—still urgent, because the ravages of rust never cease unless metal is protected. The two famous names in rust preventives are:

cosmoline—a brand first registered in 1881 and still being used for many types of Houghton rust preventives. This name is now being particularly applied to products meeting government specifications. There's a new Cosmoline to meet AXS-673, another recently approved for AN-C-124.

RUST VETO—Many men think of this Houghton brand when considering rust preventives for industrial use, rather than for required "specs." Hence Rust Veto will be the name increasingly applied to Houghton preventives intended for industrial protective applications. There are new Rust Veto products, too—the result of our many years of experience and research in the neverending fight against rust. Tell the Houghton Man your problem, or write—

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PERSONALS

- Edward A. Miller has been appointed general manager of the building panel division of Detroit Steel Products Co., Detroit, with his headquarters in that city. He has been chief engineer of the division for the past three years. Mr. Miller succeeds William Gillett, who has been appointed vice-president, assistant to the president.
- · Ronald E. Griffiths, who served for three years as supervisor of the research laboratory of American Steel & Wire Co., Cleveland, has been appointed assistant director of research for the company. Mr. Griffiths has been associated with the Wire company on various technical assignments since 1937. In his new post, Mr. Griffiths succeeds Willis T. Cramer, who has been transferred to the position of division metallurgist for corrosion-resisting alloys, in the company's metallurgical department. Roland O. Hartman has been named to succeed Mr. Griffiths as supervisor of the research laboratory. He has been a member of the research staff since 1936.
- Clifton M. Kolb has been elected senior vice-president and a member of the executive committee of the Glidden Co., Cleveland. Mr. Kolb joined Glidden in 1922, has been secretary of the company since 1929 and was elected a director of the company in 1938.
- Frank Weir has been promoted to Pittsburgh district sales manager, Harbison-Walker Refractories Co., Pittsburgh, succeeding Harold S. Dunn. Mr. Weir, who joined Harbison-Walker in 1923, had formerly served as St. Louis district manager.
- John D. Judge, executive vicepresident, has been elected a director of the Tube Reducing Corp., Stamford, Conn.
- Paul E. Lundquist, formerly vice-president of Republic Drill & Tool Co., has joined the firm of Pettibone Mulliken Corp., Chicago, as sales manager of the newly-formed construction equipment division.





JOSEPH G. SMITH (left) and W. A. HIBLER (right), purchasing agents, Pittsburgh Steel Co.

- Joseph G. Smith, formerly New York district sales manager and W. A. Hibler, formerly assistant purchasing agent, have been named purchasing agents for Pittsburgh Steel Co., Pittsburgh. Mr. Smith joined the company in 1937 and has served as district sales manager in the Pittsburgh and New York districts. Mr. Hibler joined the company in 1942 and has served as a buyer and assistant purchasing agent.
- John M. Mulholand has been appointed traffic manager of the Youngstown Sheet & Tube Co. at Chicago. He had previously served as manager of railroad sales.
- Frank R. S. Kaplan has been elected acting president of Copperweld Steel Co., Pittsburgh. Mr. Kaplan has been connected with Copperweld since its organization in 1915. He has served as general counsel and secretary, and since 1947 has been first vice-president.
- L. B. McCarthy has been appointed vice-president in charge of operations of the General Fire-proofing Co., Youngstown. Mr. McCarthy, who has been 45 years with General Fireproofing, has been succeeded as general superintendent by A. H. Anderson, who has served as assistant general superintendent since 1946. Mr. Anderson joined the company in 1916 and for many years specialized in the design of tools and fixtures.

- · Joseph A. Marland has been appointed sales manager and Thomas A. Jones, assistant sales manager, W. A. Jones Foundry & Machine Co., Chicago. Joseph A. Guyer has been named advertising manager. Mr. Marland has been with the Jones organization since 1926 and prior to his promotion had been handling sales in the Chicago territory. Mr. Jones has been with the company since 1940, serving as secretary and personnel manager. He continues his duties as secretary in addition to his new position. Mr. Guyer joined the firm in 1929 and has had estimating, engineering sales and advertising experience with the organization.
- R. R. Estill has been named general superintendent, fluorspar division, U. S. Coal & Coke Co.. Mexico, Ky. Mr. Estill joined the company in 1939 as superintendent of the company's Thorpe Mine in Gary, W. Va. Later he was transferred to Lynch, Ky. where he became assistant general superintendent. He then went to Washington acting as a special representative for the firm and in 1945 was named combustion engineer for H. C. Frick Coke Co.
- I. W. Wilson, vice-president in charge of operations and a director of the Aluminum Co. of America, Pittsburgh, has been named senior vice-president of the company.

THESE BOLTS ARE SOMETHING SPECIAL...

Down time is costly. Earth-moving equipment, tractors and other heavy machinery need bolts that can resist extremely severe stress, shear and impact without wear or breakage.

"National" makes special bolts for such rugged service from high carbon or alloy steel, specially heat-treated.

These bolts can really stand the gaff.

Exceptional experience and facilities in cold beading enable us to offer unusual service on all types of "specials" that can be made by the upset process. We are often able to effect substantial savings.

Please send us your inquiry.

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JAMES M. DARBAKER (left), general manager of sales, and STEPHEN M. JENKS (right), manager of operations, Carnegie-Illinois Steel Corp.

- · James M. Darbaker, Chicago manager of operations for the Carnegie-Illinois Steel Corp., Pittsburgh, since 1947, has been appointed general manager of sales. He has been succeeded as manager of operations by Stephen M. Jenks, formerly general superintendent of the Gary Works. Both men have their headquarters in Pittsburgh. Mr. Darbaker succeeds J. Douglas Darby, who became vice-president in charge of sales for Carnegie-Illinois last year. John Vohr has been appointed general superintendent at the Gary Works, succeeding Mr. Jenks.
- T. Hollister Mabley has been appointed vice-president and general manager of Mechanical Heat & Cold, Inc., Detroit.
- Donald G. Morse has been appointed director of the employe suggestion plan section of the employe relations staff of General Motors Corp., Detroit, succeeding John M. Jerpe, who died. Mr. Morse has been with G.M. since 1935 and joined the employe relations staff in 1945.
- William H. Schwinger, vicepresident and treasurer and Harold G. Rogers, vice-president in charge of sales, Irving Air Chute Co., Inc., Buffalo, have been elected to the board of directors, filling vacancies caused by the deaths of James C. Willson and George Waite.

- H. L. Kent, formerly manager of the railroad department of Ingersoll Rand Co., has been appointed assistant to the president of Standard Railway Equipment Mfg. Co. of Chicago, with his headquarters in New York.
- Nicholas M. Walker has been appointed to the packaging and labeling division of Pennsylvania Salt Mfg. Co., Philadelphia. Mr. Walker has been associated with Pennsalt since 1945.
- · L. M. Gumm has been named metalworking consultant for the industrial sales department of Westinghouse Electric Corp., East Pittsburgh, Pa. Prior to this new assignment and for the past 11 years, Mr. Gumm has been manager of the steel mill and metalworking section of the industrial sales department. K. M. Patterson has, been appointed manager of the steel mill and metalworking section. Mr. Patterson had formerly served as special representative in the transportation and generator division.
- John Loudon has been elected vice-president in charge of production, Harper Electric Furnace Corp., Niagara Falls, and Edward G. Pierson has been elected vice-president in charge of purchases for the company. Both have been identified with Harper for many years.

- H. Paul Gant has been elected chairman of the board, Main Belting Co., Philadelphia. Roland C. Disney has been elected member of the board and vice-president in charge of sales. Mr. Gant had formerly served as vice-president of the Carrier Corp. and Mr. Disney had been vice-president of Whitcomb Locomotive Works, a division of Baldwin Locomotive Works.
- Willis T. Windle has been elected treasurer and controller of the Carborundum Co., Niagara Falls, N. Y., succeeding Austin W. Clark, who died. He had formerly been associated with the National Supply Co., Pittsburgh.
- Ernest F. Becher, vice-president and general manager of the Barcalo Mfg. Co.'s Chandler St. plant in Buffalo, has been elected executive vice-president in charge of manufacturing of both plants in Buffalo.
- William S. Loose, formerly director of the development section of the magnesium laboratory, has been appointed magnesium division sales manager for Dow Chemical Co., Midland, Mich. Mr. Loose joined Dow Chemical in 1927 and has been continuously associated with magnesium operation since he started with that company.

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- Frank R. Campbell has been named sales development manager for the southeastern sales division of Replacement Tire Sales of the B. F. Goodrich Co., Akron, Ohio. Clare E. Sears succeeds Mr. Campbell as Washington district manager.
- Harold R. Boyer, Thomas M. Belshe and O. C. Hall have been elected directors of Lear, Inc., Grand Rapids. A. F. Haiduck has been elected a vice-president and A. G. Handschumacher, assistant secretary.
- J. Sydney Snelham, vice-president and comptroller, Continental Can Co., has been elected a director of the Vulcan Detinning Co., Sewaren, N. J.
- Herman C. Strom, has retired as vice-president of Pittsburgh Steamship Co. Mr. Strom started as a clerk with the company in 1907 and has been vice-president since 1941.

• Walter Carlson has been made assistant manager of sales of Benjamin Wolff & Co., Chicago. Mr. Carlson formerly had charge of the Chicago district.

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- F. H. Jones has been named credit manager of the Kaiser Co., Inc., Oakland, Calif. Mr. Jones has been associated with the Kaiser organization for the past six years.
- Wilbert L. Terre has been appointed chief chemist, Industrial Smelting Corp., Chicago Heights, Ill. Mr. Terre had previously served as chief analytical chemist of Edwal Laboratories.
- William C. Graham has been added to the marketing group and Simon H. Wareham, to the manufacturing group, McKinsey & Co., New York. Mr. Graham had formerly been assistant to the sales manager of the Rubberset Co.'s specialty division and Mr. Wareham had been associated with Eastman Kodak Co.
- Robert M. Oliver has been appointed to the newly-created position of general merchandise manager in the traffic appliance division of Landers, Frary & Clark, New Britain, Conn.
- L. Louis Malm, who had formerly served as plants and process engineer, has been named chief engineer of the Industrial Rayon Corp., Cleveland.
- Arthur A. Blue has been appointed manager of the instrument division of Thomas A. Edison, Inc., West Orange, N. J. Mr. Blue, who has been acting as assistant manager of the division for the past six months, had formerly been associated with W. W. Slocum & Co.
- R. E. Kenney has been appointed midwest sales representative for the Kold-Hold Mfg. Co., Lansing, Mich.
- Gilbert L. Watson has joined Rawleigh Moses & Co., Inc., in the Business Development Dept. Mr. Watson was formerly president of Republic Precision Mfg. Co.
- G. Webber Knight has been appointed to head the Washington, D. C., office of the McPherson Co., Greenville, S. C.



STANLEY M. HUNTER, executive vice-president, American Hoist & Derrick Co.

- Stanley M. Hunter has been elected to fill the newly-created position of executive vice-president of the American Hoist & Derrick Co., St. Paul. Mr. Hunter joined the sales department of American Hoist in 1936 and has served as vice-president of sales and a member of the board since 1945.
- Earle W. Mills has been elected executive vice-president and a director of Foster Wheeler Corp., New York. David McCulloch, formerly executive vice-president, has been named vice-chairman of the board.
- Paul J. Welsh has been appointed to the research staff of E. F. Houghton & Co., Philadelphia. Mr. Welsh had foremrly been associated with B. F. Goodrich Co., Akron, Ohio.
- Dawson Spurrier has been appointed president of High Vacuum Processes, Inc., Philadelphia. Since 1944 when Mr. Spurrier assisted in the formation of the organization, he has served as a director and vice-president. Austin K. Smithwick has been appointed to the board of directors.
- Wilfred J. O'Sullivan has been named manager of the hourly personnel department of the industrial relations staff, Ford Motor Co., Dearborn, succeeding E. M.



JAMES E. ZIEGLER, sales engineer, Cooper Alloy Foundry Co.

- •James E. Ziegler has been appointed to the sales engineering force of the Cooper Alloy Foundry Co., Hillside, N. J. Mr. Ziegler is stationed in Cleveland.
- Paul P. Smith has been appointed renewal sales representative for the radio tube division of Sylvania Electric Products, Inc., New York.
- M. L. Judd has been named manager of the Warm Air Furnace Div., U. S. Radiator Corp., Detroit. Mr. Judd had formerly been sales manager of the Delco Appliance Div., General Motors Corp., in Rochester.
- Ernest C. Britton, James F. Curtiss, Michael C. Dolak, Harry Mac-Cullum, Jr. and Henry L. Shepard have been elected directors of Plume & Atwood Mfg. Co., Waterbury, Conn. Henry A. Delvy, who served as controller for many years, has been elected treasurer.
- Anita Berger, Otto T. Englehart, Maurice A. Hallam, Richard M. Quimby and Daniel D. Schwartz have been elected directors of the Beryllium Corp., Reading, Pa. Mr. Schwartz has been elected chairman of the board; Mr. Englehart, president; Matthew J. Donachie, vice-president; Mr. Quimby, secretary, and Anita Berger assistant secretary and treasurer.



THOMAS F. O'BRIEN, metallurgical engineer, MacDermid, Inc.

- Thomas F. O'Brien has been appointed to head a newly-formed department of MacDermid, Inc., Waterbury, to develop and promote the Troxide compounds of the Waverly Petroleum Products Co. Mr. O'Brien, a metallurgical engineer, had formerly headed the industrial chemical division of Waverly and had previously been associated with the Philco Corp. and General Motors Corp.
- Robert L. Zahour has rejoined the lamp division of Westinghouse Electric Corp. in Bloomfield, N. J. Mr. Zahour joined Westinghouse in 1923 and in 1935 left the company, becoming associated with Connecticut Light & Power Co. Most recently he has been connected with North American Philips Co., Inc.
- Arthur B. Meredith has been appointed chairman of the board of Meredith, Simmons & Co., Ltd., the Canadian subsidiary of National Starch Products, Inc., New York.
- F. C. Schulz has been named office and operating manager and J. J. Allman has been appointed manager of accessories sales in the Associated Lines sales division of B. F. Goodrich Co. Mr. Schulz has been in the division since 1935. Mr. Allman, who has been with the company 12 years, succeeds M. J. Way, who enters his own business.



ROY PERKINS, manager, Blast Furnance Dept., F. H. McGraw & Co.

- Roy Perkins has been appointed manager of the blast furnace department of F. H. McGraw & Co. in Pittsburgh. Mr. Perkins has had many years of blast furnace experience, and prior to his recent appointment, had been working on blast furnace projects for the company.
- E. King Graves has been appointed sales manager of Edward Ermold Co., New York. Mr. Graves joined the Ermold Co. early in 1948 as sales representative and later that year was made assistant sales manager.
- Charles E. Pearson has been appointed coordinator of sales, production and engineering for the new speed grip nut retainer division of Tinnerman Products, inc., Cleveland.
- W. H. Hammond has been elected vice-president in charge of sales, Marion Metal Products Co., Marion, Ohio. Mr. Hammond had recently resigned as vice-president of all divisions of Gar Wood Industries, Inc.
- Robert C. Tait has been appointed president and a director of the Stromberg-Carlson Co., Rochester, N. Y., succeeding Dr. Ray H. Manson, who has become chairman of the board. Wesley M. Angle, retiring chairman, has been elected honorary chairman of the board.

OBITUARY...

- Harvey C. Rentschler, 68, retired director, research division, Lamp Div., Westinghouse Electric Co., Bloomfield, N. J., died March 23,
- Arthur Purnell, 60, district sales manager in charge of the Chicago sales office of the Youngstown Sheet & Tube Co., died suddenly Apr. 1 of a heart attack at his home.
- Virgil L. Downing, 59, chief design engineer, automobile division, Nash-Kelvinator Corp., died March 21.
- Frank S. Badger, 81, internationally known hydraulic engineer, who directed large projects in South America, Burma, Australia and New Zealand, died March 17 in Arlington, Ill. He was formerly of Lowell, Mass.
- Albert W. Russel, 73, founder and chairman of the board, Detroit Bevel Gear Co. and Republic Gear Co., Detroit, died in Cleveland, March 21.
- Benjamin F. Waterman, 69, retired head of the mechanical planning department, Brown & Sharpe Mfg. Co., Providence, died March 22.
- William A. McIntyre, 71, formerly superintendent of the Stafford Foundry, Hyde Park, Mass., died in Portsmouth, N. J., March 20.
- Clarence W. Gallagher, 52, assistant sales manager of Reed-Prentice Co., Worcester, died March 15.
- Clifton Slusser, 56, vice-president, Goodyear Tire & Rubber Co., Akron, Ohio, died March 25.
- George L. Lilly, 55, vice-president in charge of operations of the Isthmian Steamship Co., New York, died March 28.
- Oscar Lampl, 44. assistant manager of the Dravo-Doyle Co., Pittsburgh, died March 23.
- Antonio Frankini, 59, president and founder of Frankini Contruction Co., died March 20 at Medford, Mass.



European Letter . .

• Future of capital expansion, rising productivity and international trade at stake in development of backward areas . . . Only one country has sufficient surplus wealth to fertilize outside world.



CONDON—In one sense, the transforming of Mr. Truman's Fourth Point from a general aspiration into a practical program has begun. On February 25, Mr. Willard Thorp formally laid the Fourth Point before the Eco-

Mr. Truman's Fourth Point was made in his inaugural speech Jan. 20 and refers to a bold new program for the economic development of backward areas to be carried out in cooperation with the United Nations.—Ed.

nomic and Social Council of the United Nations and invited the nations to cooperate with Uno in devising a program for raising the standards and prosperity of backward areas. A week later, as a result of his initiative, the Council adopted a comprehensive resolution, calling upon the Secretary General to prepare a report for the next meeting of the Council, in Geneva in July. This report would have three purposes-to provide a plan for an expanded cooperative program of technical assistance for economic development, to outline methods of financing the program and to suggest ways of coordinating the planning and execution of the program.

The fact that the United Nations are now officially seized of the Fourth Point does not, in itself, advance its development very much beyond the germ of the idea as it was first suggested by President Truman. True, the American delegates

made it clear that there was no question of a new Marshall Plan for all. Mr. Thorp spoke primarily of technical assistance and insisted that the bulk of new investment should be provided by the countries themselves. The full scope of the program has still to be worked out. and it is clearly vital to realize from the outset that the problem it is intended to meet goes far beyond the poverty and backwardness of certain areas in the world. What is at stake is the whole future of capital expansion, rising productivity and international trade.

It is a truism to say that the prosperity of the nineteenth century was based upon the ability of the new industrial nations of western Europe to export capital as well as goods, and upon their willingness to accept goods in return. In the decade before the first world war, the capital investment of Britain, France and Germany abroad rose to an annual average of the equivalent of about \$1,500 billion, at the prevailing rate of exchange. This tremendous and continuous fertilization of the world not only directly increased the productivity and raised the standards of such hitherto backward areas as India, southeast Asia, the Argentine pampas and the plains of the Middle West. It had important consequences in the sphere of trade. The raw materials which it helped to develop, grain and meat in the New World. rubber, tin, sugar in the colonies. kept pace with the expansion of industry and maintained a reasonable balance between manufactured goods and primary products-the balance underlying stable terms of trade. Capital development on this scale insured that trade was both many-sided and expanding. Western Europe paid for an increasing percentage of its imports out of income earned on foreign investments. and the raw materials produced in southeast Asia were vital in trading with the expanding United States.

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BETWEEN the wars, this whole structure of trade based on steady capital expansion was seri-

ously weakened. Western Europe ceased to be a large exporter of capital. By 1938 all foreign lending had ceased. The United States did not take its place. After a hopeful but inexperienced spurt in the 'twenties, foreign lending fell away. American investment abroad represented \$8 billion in 1929, and only \$3 billion in 1938. By 1939, the flight of capital to the United States had counterbalanced American lendings in that year and net American investment overseas was nil. The war, by ruining western Europe and immensely increasing its dependence upon the Western Hemisphere, accelerated a sequence of events which was already in train, though not very clearly recognized, long before 1939. The question today is quite simply whether the capital expansion which made possible balanced trade between the nations and rising standards of living throughout the world can be secured in this century as it was so signally in the last.

Implicitly at least, President Truman's Fourth Point recognizes the fact that unless governments take active steps to restore the old wealth-creating flow, it is not likely to come about of itself. On the side both of the creditors and of the debtors, inhibitions impede the export of capital which were absent in the heyday of liberal free trade. On the side of the creditors, the fact must be faced that in the next decade at least only one community will have sufficient surplus wealth to fertilize the outside world and that is the United States. Yet the United States is not a natural investor in the foreign field. The tightness of Britain's island frontiers forced it consistently to invest overseas. In 1909, one-fifth of Britain's capital was invested abroad. In the United States, on the contrary, overseas investment has failed to keep pace with the growth of internal prosperity and the second world war accentuated the process. In 1948, private domestic investment in the United States amounted to nearly \$40 billion. Private investment abroad was only \$900 million, the bulk of it invested in Latin America and Middle Eastern oil. It is true that, in 1948, the domestic market in the United States was booming.



On Call... ALL STANDARD CLUTCH HEADS On Short Order... "SPECIALS" TO SUIT

Plant expansion, with greatly increased production facilities, has freed us from the bug-a-boo of the back-log.

More than that, it has resulted in the establishment of "banks" at the factories. Thus CLUTCH HEAD Screws, in virtually all standard sizes and types, may be called for with assurance of fast deliveries.

Likewise, with these extended facilities, you can rely on speedy action going behind your requirements for "Specials" to meet your specifications.

As always, CLUTCH HEAD is truly "On Call" for the delivery of safety and savings with features that are unequalled by any other screw on the market today.

Start your investigation of America's Most Modern Screw by sending for assortment of screws, sample Type "A" Bit and illustrated brochure

Only in CLUTCH HEAD do you get the dual safety of automatic dead-center entry and non-tapered driving for zero in skid damage . . . plus easier driving with freedom from fatiguing end pressure to buck "ride-out." Only CLUTCH HEAD has the Lock-On to hurdle "fumble spots." Only CLUTCH HEAD has a



Type "A" Bit rugged enough to drive 214,000 screws non-stop ... and that can be repeatedly reconditioned on-the-spot in 60 seconds. And CLUTCH HEAD alone simplifies field service with a recess that is basically designed for operation with a common screwdriver.



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TYPE "A" ASSEMBLY BIT

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It is possible that as the opportunities for new investment are satisfied at home, American investors may become more interested in opportunities abroad.

HE chief problem on the credi-I tor side is therefore to achieve a high and stable flow of American investment. But before the means for achieving such an objective can be discussed, there are difficulties to consider on the side of the debtors. The world has changed unrecognizably since the great days of foreign capital investment. The spirit of nationalism has grown, even among the staidest members of the European community, encouraging everywhere a distrust of foreign capital. Communism has filtered into the western world and is running rampant in the Far East, carrying with it a passionate campaign against dollar imperialism. Many governments are no longer ready to permit private investment in a range of industries and services, and may in future extend the list by further nationalization. If American capital could be provided free or at low rates of interest to governments to do exactly what they wished with it, there would be few obstacles to American investment on the part of the debtors. But there would then be no American capital forthcoming to invest. The real task underlying President Truman's Fourth Point is thus to find ways and means of tempting American capital out into the world each year, on terms which give sufficient inducements to the American lender and sufficient safeguards to the non-American borrower.

Once the very wide scope of the Fourth Point is grasped, it is easy to understand the multiplicity of agencies concerned with it and the difficulty which they all meet in saying what precisely the Fourth Poin. is designed to do. It concerns the United Nations, with its specialized agencies. It concerns the Economic Cooperation Administration, and Mr. Hoffman has invited Dr. Isaiah Bowman, an authority on undeveloped areas, to head a division devoted to colonial development. It concerns the American Import-Export Bank. It interests American exporters, who have presented their views to the Government through the United States Associates of the International Chamber of Commerce. It affects American industrialists who, through the National

Association of Manufacturers have given evidence to the Economic and Social Council, arguing that given proper conditions, the United States should be able to export about 2 billion dollars of capital each year. The danger is that the Fourth Point will be buried in too much interest and too much planning, and that the essential aim, the expansion of American investment, may be lost either in a smother of programs or in the interstices of responsibility between all the agencies concerned. What is needed now is a clear cut line of advance on two or three major fronts.

NE obvious approach lies through the ECA and concerns an area in which the cooperation of American capital must be possible, if it is to be possible any-The nineteen Marshall countries are not technically backward, yet they have fallen behind in the race and have gone under the harrow of war. At the same time, they offer some of the stability and familiarity which a foreign investor must seek. Hitherto, both on the side of the United States investor and the European recipients, there have been hesitation's and some mistrust. The transfer guarantee included in the Foreign Assistance Act last year did not offer American capital sufficient inducement, and in 1948 only \$850,000 was taken up out of the \$1,000 million earmarked for loans. The European governments on their side have played a passive role where they have not been actually discouraging. A vital first step in securing greater American investment would be a serious attack upon this problem of private investment; the Europeans should state their hesitations and their terms, the Americans the guarantees they seek. Coordination of European capital investment has been adopted by the Organization for European Economic Cooperation in Paris as one of its priorities for discussion. The role of American capital in Europe could be considered at the same time.

Nevertheless, such relatively well developed areas as Western Europe or the English speaking Dominions, do not provide possibilities for investment comparable with those which exist in their dependent territories. It is here, in the undeveloped areas properly so called, that the major line of advance seems to lie. Provided that the technical

skill available to the United Nations is strengthened and some workable method of coordination between the various agencies can be established. Uno can play a useful preliminary role. Most backward areas are not in a position to profit by intensive capital development until certain preliminaries have been worked out. The first is to choose between an almost infinite variety of candidates, and the advantage should clearly be given to those territories which can help to meet the world's urgent need for foodstuffs and primary products. It is significant that American capital has gone out spontaneously in search of oil. It will be most easy to attract capital to areas likely to satisfy similar American needs or to relieve the strain of European demands on American supplies. The selection of the projects could be based upon the surveys financed either through the United Nations or through various American agencies. For instance, ECA has just made dollars available for such a study in British Central Africa.

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NCE the selection had been agreed, the groundwork of roads, railways and public utilities could best be provided by governments or by such agencies as the International Bank. The Bank has already shown some interest in such activities which, by creating minimum conditions of stability, tempt the larger private investments to follow. The advantage of entrusting this preliminary investment to international agencies is that it helps to overcome the local governments' distrust of foreign control over the basic services in the community. When these preliminaries are completed, the ground is roughly prepared for private capital.

Little in such a program would be absolutely new. There are already numerous missions scattered through the backward areas, preparing the data upon which judgments can be based. Already Americans on their private initiative have gone out pioneering in the new and more socially responsible type of foreign investment as, for instance, in the Rockefeller experiments in Latin America or such ventures as Overseas Consultants Inc. in Iran. But the drawback is that all initiatives and ventures are too thinly spread to do more than scratch the surface and at no one point do they begin to add up to a bait for really big American investment.

METALS BEING UTILIZED TO REAL ADVANTAGE

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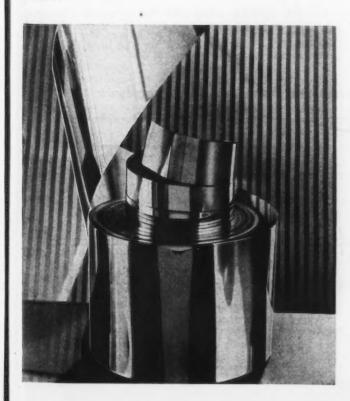
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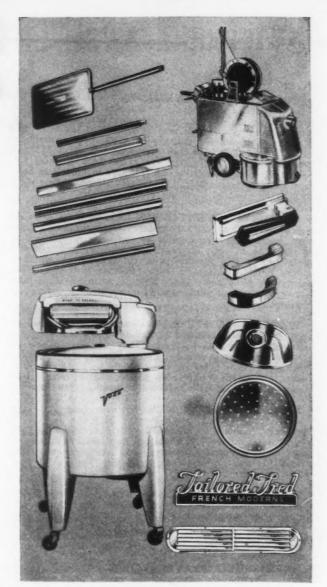
In the choice of base metal for pre-plated parts on consumer products, the manufacturer many times has a tendency to overlook the many advantages of zinc. In purchasing his plated sheets or coils he may first think of steel or aluminum base — or brass and copper.

In cost, zinc base plated sheets or coils occupy a position rather midway between plated steel and, for example, plated copper. Plated zinc is easily worked and thus is adaptable to blanking, forming, stamping and other fabrication methods.

Durability of pre-plated zinc is high. As a base metal it is rust-proof and highly corrosion resistant. With zinc as a base metal for platings, the raw edges or unplated metal back is no objection. The finish is beautiful, mirrorlike, and plated zinc is available in a range of gauges and tempers.

Zinc as a base metal may be procured with finishes of either nickel, chromium, copper or brass. It is available in sheets or long continuous coils, plated one or two sides, bright or satin finish. It is also available in crimps and patterns for unusual effects.





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While many metals are short in supply or delivered on an allocation basis thus necessitating anticipation of requirements, sheet or coil zinc is a little easier in supply. Our Peru, Illinois, plant, in addition, is located in the heart of the zinc rolling area where time is saved in delivery. In view of the workability and durable qualties of zinc base metal — it is one of the prefinished Nickeloid Metals now receiving more than ordinary consideration on the part of manufacturers.

We have just completed a new folder on our preplated zinc base metals with finishes of nickel, chromium, copper or brass. Write for it on your company stationery.

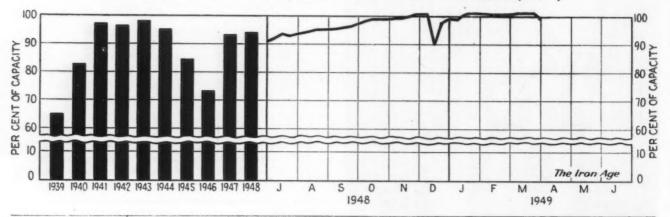
AMERICAN NICKELOID CO.

Peru 2, Illinois

- CONVERSION AFTERMATH—Three creditors last week secured a court order to appoint a trustee for reorganization of Sterling Steel Foundry Co., Braddock, Pa. The foundry is one that was revamped to produce basic openhearth ingots for conversion. The three, Pittsburgh scrap firms, who claim they are owed a total of \$133,057, are: Southwest Steel Corp., Duquesne Iron & Steel Co., and M. B. Speer Co. Other big creditors include Max Solomon Co. and Briggs Mfg. Co. Efforts are now being made to sell the plant as a complete steel foundry.
- TINPLATE INVENTORIES—Hoping for a price cut which steelmakers can't consider now, a number of tinplate consumers have decided to cut their inventories by as much as 25 pct. They are gambling on uninterrupted production and a possible price cut—neither of which is a sure thing at this time. The effect of their action has been to open up some space on cold reducing sheet mills whose output has until now been exclusively earmarked for tinplate.
- WAREHOUSE STEEL—Warehouses in the East report that heavier tonnages of carbon sheets and strip are being made available to them. They say that plates are now in the shortest supply. Consumers report that more sheet and strip is being offered to them by the major producers. So far there have been no increases in offerings by Western producers who have withdrawn from the market.
- BRITISH BOOST PRICES—British iron and steel prices were increased by an average of 9 pct on Apr. 1. The action followed withdrawal by the government of various subsidies on ore, scrap and pig iron imports previously borne by the central authority. Iron and steel prices are now 87 pct above prewar compared with 140 pct for general manufactured products.
- FORD CUTS—Ford has joined General Motors, Kaiser-Frazer and Willys Overland in announcing a price cut. The decrease ranges from \$12 to \$120 including \$12 to \$30 on Ford passenger cars; \$80 to \$120 on Mercurys, and \$100 on Lincolns. Some truck models were reduced from \$10 to \$40.
- HARRISBURG PLATES DOWN—Central Iron & Steel Co. dropped its base price for carbon steel plates on Apr. 1 to \$4.95 per 100 lb f.o.b. Harrisburg, Pa. Although the former price had been \$6.50, the price for mill accumulations (irregular sized sheets) had been lowered recently.

- STAINLESS SHEETS—Warehouses handling stainless steel sheets are concerned with the action taken Mar. 28 by Carnegie-Illinois to permit consumers as well as jobbers to combine order quantities in certain designated sheet sizes to make up the quantity discount. Jobbers fear that other stainless producers will be required to extend the combined order privilege to consumers, an action that could be expected to reduce jobber participation in the sheet market.
- UNION DEMANDS—Steelmakers and fabricators with United Steelworkers contracts may get a tip on this summer's union demands from the program to be laid before can companies. American Can and Continental Can will be presented with uniform demands calling for: "(1) A substantial wage increase; (2) social insurance; and (3) pensions and other benefits."
- NEW OPENHEARTH—Granite City Steel Co. has approved plans for a \$1.5 million openhearth furnace. This will boost annual capacity about 100,000 to 120,000 tons. Present annual capacity is 300,000 tons. Equipment for this, the fourth furnace of its type here, will be obtained from the Rust Furnace Co., Pittsburgh.
- PRICE CUTS—Youngstown Sheet & Tube Co. reduced the price of Yoloy, its high strength low alloy steels, by \$4 a ton, effective Apr. 1, to bring them to competitive levels. The company also took \$5 a ton off wire rods, setting them at the going price of \$3.40 per 100 lb.
- IRON SOLD TO U. K.—Lone Star Steel Co. sold 40,000 tons of basic pig iron to the United Kingdom at a price reported to be \$50.00 f.o.b. furnace. Sixty thousand tons of pig iron for Japan were bid for this week in Chicago.
- FOREIGN SHAPES DOWN—Some small lots of foreign structurals have been offered and sold recently at prices below the domestic price. This development represents a drop of about 50 pct in foreign steel prices in the domestic market.
- CLAD STEEL REDUCTIONS—Deductions ranging from ½¢ to 4¢ per lb on heavy gages of stainless clad steel plates have been put into effect by Lukens Steel Co. The deductions apply to plates weighing 4000 lb or more each, and cover gages from 5% in. to 1½ in.

Steel Ingot Production by Districts and Per Cent of Capacity



Week of	Pittsburgh	Chicago	Youngstown	Philadelphia	Cleveland	Buffalo	Wheeling	South	Detroit	West	Ohio River	St. Louis	East	Aggregate
March 29	102.5°	101.5°	95.0	99.0	107.0	105.0	102.0	94.0	104.0°	102.0	110.0	82.5	105.5	100.5
April 5	99.5	99.0	94.5	99.0	102.0	105.0	101.0	94.0	100.5	106.0	110.0	77.5	98.5	99.5

Industrial News Summary-

- 1948 Steel Earnings Up 32 Pct
- Scrap Market Drops \$4.34 a Ton
- · F.O.B. Setup Beginning to Hurt

HE 1948 earnings of the nation's steel companies were about 32 pct higher than they were in 1947, according to a financial analysis of steel industry operations prepared by The Iron Age. Record sales of \$8.5 billion returned net profits of approximately \$575 million, or a little less than 7 cents on the sales dollar. Few believe that the industry will be able to duplicate these postwar records in 1949.

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PER CENT OF CAPACITY

Perhaps as proof of this is the fact that steel common stock dividends increased only 7.1 pct last year while surplus funds—set aside for expansion, improvements or rough weather—were boosted by about 24 pct. The study also shows that the postwar expansion of the industry is expensive: Invested capital in the industry today is about a billion dollars higher than it was 2 years ago. Incidentally, federal income taxes amounted to \$6.24 on the average ton of finished steel sold last year.

The scrap market this week continued its falling apart. There was no sign yet that rock bottom had been reached. Buyers were still noticeable by their absence from the market. One of the sharpest drops on record took place this week. Heavy melting grades were down an average of \$6.00 a ton at Pittsburgh, \$5.00 a ton at Philadelphia and \$4.00 a ton at Chicago. The Iron Age steel scrap composite dropped \$5.00 a gross ton with the index reaching \$26.17 a gross ton. This is the lowest level since the second week in December, 1946. The scrap composite has dropped \$16.83 since the first week in January.

Steel users this week were breathing hard on steel salesmen trying to argue why steel prices should be lower. Their exhortations were falling on deaf ears. Steel people point out that regular mill prices were a far cry from what gray marketeers charged or what it costs via the conversion method of buying steel. They also point out that steel prices went up a whole lot less than other prices.

AND to cap their arguments they say that until coal mining costs and steel costs, with probable increases due to social security demands, are determined there isn't a ghost of a chance of any change in base steel prices. At least that's the viewpoint of steel people. The consumers, however, will keep up their pressure hoping that their own costs can be alleviated by lower material costs.

Steel customers in the past six months already have received lower steel prices by (1) end of the gray market which ran as much as \$100 to \$200 above mill prices, (2) end of con-

version deals which cost from \$50 to \$150 more than mill price, (3) end of premium prices which ran from \$10 to \$30 more than regular mill prices and (4) getting steel closer to home which meant less freight to be paid by the user. A combination of these reasons had supported some of the price cuts made by manufacturers.

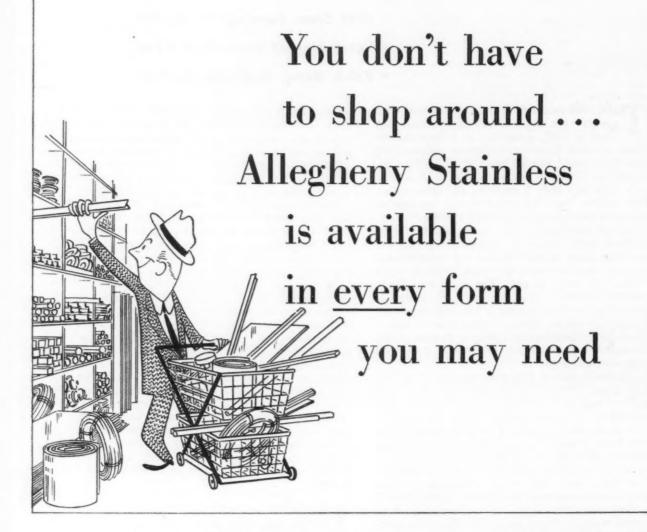
Pretty soon the f.o.b. method of selling steel will slap hard at steelmaker and steel user. So hard that it will be the prime topic of conversation. Midwestern steel firms are trying to sell their wares in Chicago and other remote districts this week. Because steel is still a little hard to get for some customers they may take the long shipments and pay the extra freight.

But when Chicago area mills catch up—as they will soon—they will supply all customer requirements in their own area. Steel from remote centers will be turned down because of high freight paid by the consumer under f.o.b. selling practices. This means that Pittsburgh and Ohio Valley areas will be making more steel than they can sell around home. If they can't absorb freight and remain competitive they will have to cut back operations. It can be expected that these cutbacks will not be far away at the rate some steel consumers are reducing inventories in lieu of placing large steel orders.

THE period when f.o.b. will make backyard selling the main prop in the steel market is coming closer. And the yelling and hollering by steelmaker and consumer alike is also just that close. Already hot-rolled bars, some structural shapes, sheets, strip, pig iron and all types of alloy steel are being offered by steel firms in areas where they haven't been for a long time.

Under the present setup in the steel industry there is little that can be done to prevent this concentration of steel sales close to mill centers. Where the mill centers make enough for surrounding territory all will be well. But where the steelmaking areas produce far more than is consumed in their locality the picture will be dark if the steel demand slides—as some expect it to in the next few months.

The steel ingot rate this week is off one point to 99.5 pct of rated capacity. There was no sign this week that the steel ingot rate was slated for a deep drop in the near future. It was still the consensus that steelmakers would roll out as much steel as possible until at least midyear. At that time the coal and steel labor situation might play the part in dictating how much or how little steel is to be turned out.





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we're steadily improving supply facilities—you can get Allegheny Metal promptly in any grade, form or finish.

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The Nation's Leading Producer of Stainless Steel in All Forms

Pittsburgh, Penna. . . . Offices in Principal Cities
Allegheny Metal is stocked by all Jos. T. Ryerson & Son, Inc., Warehouses

Industrial Expansion In Texas Showing Signs of Leveling Off

Houston

• • • Steel markets in Texas since the war have been abnormal due to the terrific industrial and commercial expansion. Tonnages shipped into Texas, have in the case of certain products, tripled prewar shipments. Last year, Texas industrialists told THE IRON AGE, probably will go down in history as the high water mark of Texas expansion. From here on the general building and expansion programs will gradually decrease and then steel demand will eventually level off at a rate necessary to supply and sustain the major staples of Texas: oil, gas, sulfur, cotton, cattle, and the chemical industry. Texas received roughly 3.5 pct of all finished steel shipped in 1940. Last year they received about 5 pct. Somewhere between these two figures, it is believed, will be the normal market for the state in the next few years.

Texans have no intention of jeopardizing the huge industrial progress made in post-war years by blindly overexpanding. Right now they show a caution and conservatism which was not apparent 6 months or a year ago. Part of this attitude reflects the general business attitudes now prevalent everywhere. A bigger part of it is due to the fact that basically Texans lay their plans on what happens to Texas, irrespective of conditions in the outlying areas.

Today every Texan is watching the oil industry. It is shaky. Supplies are adequate and crude production or allowables for the industry have been cut by the Texas R. R. Commission for 4 consecutive months. Cuts in production started last year, but in January 250,000 bbl per day were lopped off. In February the commission cut another 66,000 bbl, in March 200,083 bbl, and the April cut will be 234,-211 bbl per day. Total allowables for April are set at 1,994,360 bbls per day so the oil industry is still far from being in a slump.

However, the crux of the oil situation depends on price. Although the Texas R. R. Commission's function is one of conservation of national resources, they automatically control price for the simple reason

But There Is Still a Demand For Special Steel Items, Weak Gray Market

> By D. I. BROWN Chicago Regional Editor

that they regulate supply and demand. So far the cut in production has staved off a price decline, but how much longer the present price can be held is highly questionable.

Should the price fall it will affect the drilling program. Steel pipe for oil or gas wells is one of

the few steel products still in short supply in Texas. This includes casing, drill pipe and line pipe. Should the price fall, steel pipe supplies, except large diameter line pipe, will quickly become normal. Last year the oil industry drilled about 135 million ft. This year they estimate they will drill 140 million ft, but this program can decline very quickly. One large driller in the Dallas area shut down 100 of the 300 drilling rigs he operates a few weeks ago.

Last year the oil industry yelled long and loud for more steel, particularly pipe. They are not yelling so hard now. In fact, one oil executive told THE IRON AGE that they are glad they didn't get all the steel they wanted, as if they had they

(CONTINUED ON PAGE 147)

Time's a'wastin'



Government Revokes Allocation Order For Control of Antimony

Washington

• • • Allocation Order M-112 which controlled receipts and inventories of primary antimony has been revoked by the Dept. of Commerce.

Issued originally by the WPB, in recent years the order has not contained use restrictions but served merely to control distribution through restriction of inventories. Future supplies are seen as adequate enough to make even this restriction unnecessary.

New supplies in 1948 rose 3500 tons to a total of 23,909 tons, of which domestic mine production amounted to 6693 tons. Imports totaled 13,545 tons of ore, 3311 tons of metal, and 360 tons of needle.

Consumption amounted to 17,-112 tons and exports, 839 tons. Both represent reductions over 1947.

Total stocks at the year's end amounted to 13,523 tons, virtually unchanged since the end of 1947. Of this amount, private holdings had increased to 9413 tons while the amount held by RFC had dropped to 4110 tons. The latter tonnage is exclusive of stockpile holdings.

Reports Indicate Rise In Automotive Output

Detroit

• • • There are indications that the output of cars and trucks from U. S. and Canadian plants may climb as much as 20 pct during the second quarter, according to informed sources here.

Ward's Automotive Reports placed the combined U. S. and Canadian output for the week ended Mar. 27 at 107,284. Of this number, 74,326 were passenger cars and 32,958 are trucks, Ward said.

Auto production at the Chrysler Divisions, General Motors, Ford and Studebaker are expected to climb substantially during the period, Ward's indicated. It is expected that the Chrysler increase will be substantial. At the present time Chrysler output has been hit by a strike at Midland Steel Products Co. Midland supplies frames for several Chrysler lines.

Changes Agency For Voluntary Allocation Of Steel Products

Washington

• • • Secretary of Commerce Charles Sawyer has announced that effective Apr. 15, the Office of Defense Transportation will be relieved of the responsibility of administering the voluntary plans providing steel products for the freight car and barge programs.

Administration of the plans will be carried on by the Office of Industry Cooperation, Dept of Commerce.

"ODT has requested that it be relieved of the responsibility of administering the plans because its Div. of Manpower and Materials is being liquidated." Mr. Sawyer said.



SUGGESTION WORTH \$3950: An employee suggestion award totalling \$3950, the largest yet made to an individual worker of Sylvania Electric Products, Inc. has been presented to Rufus Schager of Emporium, Pa., according to J. C. Farley, general manager. Schager's idea won the top award because it has materially reduced shrinkage in radio tube production, has increased production and shortened time required for a basic small parts operation.

Zinc Price Reflected In Lower Quotations For Galvanized Pipe

New York

• • • Reflecting reduction in price of zinc, U. S. Steel Export Co., U. S. Steel subsidiary, has announced the accompanying new prices with freight included to New York, Philadelphia or Baltimore.

These prices will apply on carload lots and are effective with shipments made from the mills on and after 12:01 A. M. Mar. 24, 1949. Prices are subject to seller's current list of extras and deductions and conditions of sale. All prices are subject to seller's prices in effect at time of shipment.

American Standard Pipe, T. & C.	
Buttweld 21/2" and 3"	
Galvanized	21.6%
Seamless, 31/2" to 6"	
Galvanized	14.1%
English Gas Tubes, T. & C.	
Buttweld, 21/2" and 3"	
Galvanized	23.5%

Sells Canadian Plant

Boston

• • • Delamore and Williams Ltd. of West Toronto, Canada has sold its business, including real estate, plant and equipment to Delamore and Williams Co., Ltd., a wholly subsidiary of Pneumatic Scale Corp., Ltd. of Quincy, Mass. This Canadian plant will continue to be under the direction of Victor G. Williams as president and general manager. Kendall D. Doble, president of Pneumatic Scale Corp., Ltd. will serve as chairman of the board of the new Canadian subsidiary.

Recalls Railroad Workers

Buffalo

 • • More than 1000 railroad workers in the area who were furloughed during the coal miners' holiday were recently recalled.

The New York Central resumed operation of its East Buffalo car repair shops with 650 workers and 100 operational employees also were recalled. The Baltimore & Ohio and Pennsylvania Railroad called back approximately 300.

Lists 236 Industrial Reserve Plants Valued at \$2.3 Billion

Washington

•••• War production facilities worth \$2.3 billion and comprised of 236 plants or portions of plants constitute the NIPR (National Industrial Plant Reserve) as of Mar. 1, according to the Munitions Board.

These are either in actual possession of the government in standby status, under control of the military establishment, or are

THE IRON AGE listing of the National Industrial Plant Reserve includes only those plants closely associated with the metal working industry.—Ed.

in private operation under sales or leases subject to the NSC (National Security Clause).

About 50 pct of the facilities are accounted for by three groupings—aircraft and components, explosives and ammunition loading, and shipbuilding. The reason for concentration on these three is twofold. One is their importance to war production; the other is that if disposed of without restriction, they probably would have been so completely converted to other manufactures that rapid emergency reconversion would be out of the question.

A somewhat similar situation exists with nonferrous facilities which consist largely of primary aluminum and magnesium plants built for war purposes. If unrestricted disposal had been permitted, easing of current shortages might result in reduction of capacity past the safety margin considered necessary for mobilization.

Of the total now in the NIR, 96 facilities valued at \$772 million have been sold and 45 valued at \$485 million have been leased to private operators. These plants or strategic portions thereof are subject to the security clause which permits recapture by the government within periods ranging up to 120 days. An additional five facilities have been transferred to various federal agencies. These disposals account for well over half the total.

Another 22 facilities worth \$469 million but which are unsuitable for sale or lease have been transferred to the custody of the FWA (Federal Works Agency) for protection and maintenance. Four other plants are technically under the FWA although three are included in the Navy reserve and the fourth is under private operation and subject to the NSC.

The remainder of the reserve consists of 48 facilities valued at \$325 million which are included in inventories of the disposal agency and the military departments. There are 17 plants valued at \$162 million classified as nonsurplus. They are still in production on government contracts.

In addition, the Navy has requested the Board to include 26 additional plants to the NIPR. These include varied production facilities such as stainless steel and alloys (Armco, Baltimore), anchors and chains (Baldt Anchor Chain & Forge Co., Chester), optical equipment (Bausch & Lomb Optical Co., Rochester), diesel engines (Cooper Bessemer Corp., Grove City, Pa.), aircraft components, radio equipment, and so on.

Navy has also asked that eight more plants or facilities which are not now included in the NIPR be transferred. These include aircraft, armor plate, marine engine, and related parts manufacturing plants located in Baltimore, Wilmington, Bethlehem, Buffalo, Norfolk, Mobile, Oakland and San Francisco.

Original cost of these NIPR facilities amounted to about \$3.4 billion. However, only a very few were transferred to the reserve in toto. Portions of many were not necessary for the reserve, parts of others had been sold prior to legislation setting up the reserve, and some machinery and equipment had been sold or considered unnecessary for the reserve. These factors reduce the present value of the reserve to \$2.3 billion.

Generally, the NSC is accepted to mean that the government can recapture the facilities. Actually, the security provision goes much farther. It also requires the purchaser or lessee to maintain plant structures in good condition up to as much as 20 years, and reserve equipment for as much as 10 years. Failure to carry out these provisions could result, in extreme cases, in the government taking over and restoring the premises and equipment.

Of equal importance with the plant reserve is the portion of Public Law 883 which authorizes the NIER (National Industrial Equipment Reserve). This provides (exclusive of JANMAT) for the setting aside or earmarking of machine tools and other production equipment which could be utilized for mobilization.

In its Feb. 1 inventory report, WAA indicated that in addition to 29 plants already certified as such, another 52 plants subject to the NSC would probably end up in this category. About 45 of the latter will probably be certified as unsaleable and unleased during 1949 and the remainder during 1950.

The Munitions Board report to the Congress contains the full reports of the National Industrial Reserve Review Committee which was set up to obtain the advice and assistance of industry in carrying out this program.

Among its many recommendations the committee urges the Board to take immediate steps to prevent further deterioration and to have available at all times work and cost estimates required to place the plants in extended standby condition, as well as condition to operate. The committee also suggests that the National Security Clause be liberalized so that industry will absorb excess plants more readily.

Please turn page for listing of plants in National Industrial Reserve.

merica Mensant City, I

ing Co. (Nowat Nines) Columbu 88,359,

(Puget Dredgin Seattle \$2,221,

Atlant1 ings Co Crum Ly \$486,00

riatio (Republ Product Detroit \$494,00

Barlum tion Canton \$731,00

John 1,598,0 ath Iro 2,987,0

Modific o. 14) irmingh 15,241, Bendix . Plants South B 12,875

Plante Outh Be

endix A eterbor 1,218,0

thlehe Lehig ethlehe 19,507, Hison C

276,000

Renton, Plancor 111,980,

Rass Co Marian, 16,663,0

FACILITY	IN NIR	PRODUCT	STATUS	FACILITY	SPONSOR IN NIR	PRODUCT	STATUS
dirondack Foundry nd Steel Company aterviset, F. Y.	Army	Gun Forgings	Sold March 1948 to Affrondack, subject to MSC, modified to require	Aluminum Company of America Maspath (Newton Greek)	Havy	Aluminum	Leased to Navy for use as extension to Brookly Navy Tard through June
1,832,000 *			maintenance of capacity for five years.	L. I., W. Y. \$32,800,000			1949. Navy is sponsoring legislation for transfer
ir Reduction Sales o., Inc. loucester, E. J. 88,000	Air Porce	Oxygen	Surplus. Under interim lease to Air Reduction Seles Co.				to Department of Havy without reimbursement. Vacant land sold to George Jacobs in Movemb. 1945, prior to applicat of MSC.
labama Drydock & hipbuilding Com-	Eavy	Tankers	Sold January 1949 by VAA	Aluminum Company of	Air Force	Aluminum	Leased to Permanente
oblie, Alabama 14,643,000			to Contractor, subject to modified MSC applied only to Fabricating Shop, Ware- houses #1 and #2 (excl. Machinery and Equipment); 75-ton Gantry Crane on	America Hewark (Heath) Ohio \$10,690,000		blooms, rods and bars	
			Pier "L"; and 72 acres of land (excl.of all improve- ments) known as Turner Tract. Restrictions removed 28 January 1949 from remain- er of surplus facility.	Aluminum Company of America Phoenix, Arizona \$16,003,000	air Force	Aluminum	Leased through Decembe 1951 to Reynolds Netal Company with option to purchase.
labama Drydock & hipbuilding Co. obile, Alabama 3,813,000	Eavy	Tankers	Monsurplus; held by Mavy	Aluminum Company of America Elverbank, Calif. \$5,159,000	Air Force	Aluminum	Transferred to FWA
lusimm Company f. America Alusina Plant aly) aton Rouge, La. 26,450,000	Air Force		Alumina plant leased to Permanente Metals Corp. through June 1963, subject to MSC restrictions with remewal options extending to June1973. Rotary kilm and equipment sold July 1948 to Lone Star Steel Co. and right-of-way sold to New Or- teans. Texas & Mexico RR with- out HSC	Aluminum Company of America Spokane, Washington \$11,492,000	Air Force	Aluminum	detals Corporation to July 1963, subject to MSC restrictions, with remewal options extend to July 1973, and optic to purchase. MSC to be modified to permit moviplant in the event raw materials are no longer available at present
lunimum Company of merica arlington, New Jerse 12,500,000	Air Force	Alunima	In WAA inventory. Plant available for sale or lease with MSC on entire plant, except carbon facilities. Building 40 sold prior to application of MSC.	Aluminum Company of America Trentwood, Washington \$40,730,000	Navy		site. Leased to Permanente Met Corporation to June 196: subject to MSC, with rer options through June 197 and option to purchase.
luminum Company of merica nicage (McCook) Ill. 84,134,000	Начу	Aluminum	Leased through May 1963, subject to MSC to Reynolds Metals, with option to purchase. Right-of-way sold to Public Service Co. and water supply line sold to Yillage of McCook prior to application to MSC.	Aluminum Company of America Troutdale, Oregon \$7,810,000	Air Force		Leased to Reynolds Metal Company to November 1963 subject to MSC restricts with option to purchase, modified to permit movin plant in the event raw materials are no longer
luminum Company of merica lassm ere, Pa. 1,065,000	Начу	Aluminum	Sold September 1948 to Ivor S. McFarlane Co., sub- ject to MSC.				available at present sit MSC removed 9 February 1 from 22.56 acres of land to surplus warehouses to permit transfer to Depar of Army.
luminum Company of merica arricane Creek, Ark. 15,758,000	Air Force	Alumina	Leased through April 1963 to Reymolds Metals, sub- ject to BSC and option to purchase. BSC to be modi- fied to permit moving plant	Aluminum Forgings, Ai Inc. Eris, Penna. \$5,094,000	r Force	Aluminum Forgings	Transferred to FWA
			in event raw materials are no longer available at present site.	Amco Magnesium Corporation Wingdale, N. Y. \$4,591,000	Air Force		Dolomite Quarry and Traway sold to D. H. Litter Inc., subject to modified NSC. Remainder transfer
luminum Company of merica ones Mills,Arkansas 29,258,000	Air Force	Aloninum	Major portion (all except two pot lines) leased to May 1963, subject to MBC restrictions to Reymolds Hetals Company, with option to purchase entire Plancor. HSC to be modified	American Steel Foundries Co. Indiana Harbor, Ind. \$28,000,000	Army		Surplus
luminum Company of	Жату	munimulA	to permit moving plant in the event raw materials are no longer available at present site. Leased to Wendo Company	American Tool Works Company Cincinnati, Ohio	Yavy	Machine tools	Sold February 1948 to American Tool Works Co., subject to MSC.
merica ansas City, Mo. 4,984,000	201/	cylinder heads for aircraft engines	to April 1956, with option to purchase extending to October 1950.	\$1,816,000 American Zinc Co. of Ill. Dums, Texas	Army	Zinc	Mon-surplus, Leased t American Zinc Co.to 1 by RFC
lluminum Company of imerica fassema, N.T. 8,175,000	# All plant valu	Aluminum	Sold to Aluminum Co. of America in October 1948 subject to MSC original	\$900,000 Anaconda Copper Mining Co. (Benbow Group Chrome Mines)	Army	Chrome	Certain structures sold removal prior to application of NSC. Remainder be transferred to FWA b

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FACILITY	SPONSOR IN NIR	PRODUCT	STATUS		PONSOR N NIR	PRODUCT	STATUS
gerican Zinc Co. on santo & Fairmount ity, Illinois &,325,000	Army	Zinc	Won-surplus. Modified WSC to be applied to require main- tenance of capacity only and permit re-erection or duplication on another site within the continental limits of the United States. Leased to American Zinc Co. to 1951 by RFC.	Bohn Aluminum & Brass Corp. Los Angeles (Torrance), Calif. \$3,219,000	Air Force	Extruded aluminum alloys (shapes, tubes, etc.)	Sold by WAA to Harvey Hachine Co. on 8 Oct.1948, subject to ESC. ESC removed from air- conditioning and circulating system February 1949.
inscends Copper Min- ing Co. (Noust Group Chrose Mines)	Army	Chrone	Certain structures sold for removal prior to application of MSG. Two warehouses remarkersed October 1948 to	Boston Haval Ship- yard Annex Chelsea, Mass. \$1,513,000	Navy	Yessels	Surplus.
columbus, Montana se, 359,000			Department of Interior under Public Law 841, 80th Congress. Remainder to be transferred to FWA by 1 July 1949.	Bridgeport Brass Co. Indianapolis, Ind. \$17,200,000	Army	Brass cartridge cases	Sold February 1947 to Bridgeport Brass Co., subject to modified MSC.
Associated Shipbuilders [Puget Sound Bridge & Bredging Co.] seattle, Washington \$2,221,000	Bavy	Seaplane tenders and mine sweepers	Surplus. Portion under interim lease to Puget Sound Bridge & Bredging Co. to April 1949, mbject to MSC with lessee obligated to maintain entire facility.	Brown Shipbuilding Co. Houston, Texas \$9,002,000	Eavy	Maval vessels	Sold to Brown Shipbuilding Co. 1 May 1948, by Mavy Department, subject to MSC.
Atlantic Steel Cast- ings Co. frum Lynne, Penns. \$486,000	Air Force	Steel Castings	Surplus. Under interim lease to Zimara Enterprises.	Brush Beryllium Co. Loraine, Ohio \$962,000	Havy	Beryllium	Surplus. Plant partially destroyed by fire. Modified HSC to be applied to require maintenance of capacity only and to permit removal to a new site.
riation Corporation (republic Aircraft Froducts Div.) Detroit, Michigan (494,000	Air Force	Aircraft Engine Parts	Sold October 1948 to Tederal Motor Truck Co. subject to MSC.	Budd Manufacturing Co., Edward G. Philadelphia (Bustleton) Fa. \$22,493,000	Havy	Troop- sleepers	Manufacturing area sold to Budd Manfacturing Co. in October 1948, subject to MSC. Airfield portion surplus,
Barium Steel Corpora- Hém Canton (Lorain) Obio #31,000	Savy	Steel	Sold to Barium Steel Corp. July 1948 subjectto MSC.	Canton Drop Forging & Mfg. Co. Canton, Ohio \$1,489,000	Air Force	Drop hammer capacity for steel	Leased through June 1951 to Canton Drop Forging an
Arnes Company, W. P. John sckford, Illinois 1,598,000	Navy	Hachine Tools	Surplus. Under interim lease to Barnes Co.	Castle Dome Copper	Army		Mon-surplus (Held by RFC.)
ath Iron Works ath, Maine 2,987,000	Navy	Ship con- struction and repai	subject to MSC	Miami, Arizona \$14,767,000			
echtel-McCone- hrsons Nodification Center 0. 14) irmingham, Alabama 15,241,000	Air Force	Airplane Modificat Center	Sold August 1948 toCity of Birmingham as air- port property under Public Law 289, subject to modified MSC.	Champion Machine & Forging Go. Cleveland, Ohio \$1,038,000	Air Ford	hammer capacit for steel forging	ça
Sendix Aviation Cor- poration (Plants 4 and 5) South Bend, Indiana 112,875,000	Navy	Oun turrets starters, generators and instru for aircraf	Bendix Aviation Cor- poration, subject to ments MSC.	Chapman Valve Mfg. Co. Springfield (Indian Orchard) Mass. \$2,984,000	Havy	Valves	Sold September 1947 to Cha man Yalve Mfg. Co. subject to modified MSC.
endix Aviation Corp. Plants 12 and 19) South Bend, Indiana 4615,000	Havy	Oun turrets for airplanes	Sold August 1948 to Bendix Aviation Corp., subject to MSC.	Charleston Shipbuild- ing & Drydock Co. Charleston, S. C. \$3,434,000	Havy	206.	Leased to Charleston Ship- building & Drydock Co. with purchase option.
endix Aviation Corp. Sterboro, N. J. 1.218,000	New	Magnesium castings	Leased to Bendix Aviation Corp. through December 1949, with purchase	Chicago Bridge & Iron Co. Senaca, Illinois \$4,107,000	Havy	Tank landing craft	
ethlehem Steel Co. Lehigh and ethlehem, Penna. 19,507,000	Bavy	Armor Plate	eption. Sold March 1947 by Many to Bethlehem Steel Co. with modified MSC.	Chrysler Corporation (Dodge-Chrysler Plant) Chicago, Ill. \$67,727,000	Ar you	mgines	Leased to Tucker Corp. to October 1957 with option to purchase. If purchase option not exercised, WSC to be spplied on land, buildings, and non-severable
Bison Castings, Inc. Buffalo, N. T. \$276,000	Navy	Electric	Sold Movember 1948 to astings Bison Castings, Inc.,. subject to MSC.	Columbia Aircraft Corp.			equipment at expiration of existing lease. ased to East Coast Aeronautic c., through December 1953.
Socing Aircraft Corp. Senton, Wash. Plancor 156 \$11,980,000	Air Force	Aircraft	Surplus. Fortion leased to multiple tenancy project; portions under interim lease. HSC to be applied to land, buildings, and	Valley Stream, L. I., M.Y. \$1,320,000			bject to MSC.
John Aluminum &	Air Force	Extraded	non-severable equipment upon expiration of existing leases. Leased to December 1951	Columbia Broadcast- ing Co. Delano, Calif. \$345,000	Зату	Trans- mitter shortwave	Mon-surplus. Under interin lease to CBS (Held by RFC.)
Mass Corp. Mrian, Mich. 16,863,000		aluminum alloys (shapes, tubes, etc.	to Kaiser-Frazer Sales Corp., subject to MSC, with renewal option to December	Columbian Bronse Corporation Freeport, L.I.,N.Y. \$330,000	Bavy	Propel- lers	Sold March 1948 to Columbi Bronze Corp. subject to MSC

SPUNSOR IN NIR

PRODUCT

Fairo Airpl (Rang Farmi \$6,13

Ford . W1110 \$58,8

Gary. Flate Gary. \$21,7

Gener Trans (Jack Termi Jacks \$4,04

Gener Tokom \$2,94

Generand Desar F

General Hamilt

General Oaklas \$1,98

General (Cleve) Cleve) \$8,192

General (Fishe Grand Michig \$25,00

General Kings \$4,65

Genera (Chevr Sagina \$2,325

Genera (Chevr Plant Tonawa \$8,784

Port W \$638,0

Eurle Inc. Osklan 1,996.

Ryde 1 Bath,

\$734,0

Solumbia Netale Corp. Salem, Oragon 85,106,000	Army	Aluminum	Surplus, Under interim lease to Columbia Metals Corpora- tion, subject to MSC. Applied to ammonium sulphate facilities
Columbia Steel Co, Pittsburg, Galif. \$8,500,000	Army	Steel castings	only. Surplus. Two open-hearth furnaces under interin lease to Pacific States Steel Corp. BSC to be applied with modified Article 10.
Consolidated Steel Corp. (formerly Western Pipe a Steel Co.) Orange, Texas \$8,828,000		Ships	Surplus
Consolidated Steel Corp. (formerly Western Pipe & Steel Co.) San Pedro (Los Angeles) Calif. \$6,093,000	Navy	Ships and small craft	Surplus
Consolidated Vultee Aircraft Corp. New Orleans, La. \$8,499,000	Savy	Air- craft	Sold October 1948 to American Radiator Co., subject to modified MSC.
Continental Aviation and Engineering Corp. Muskagon, Michigan \$5,273,000	Air Force	craft	Surplus. Portions under interim lease; portions in use for WAA warehouse purposes. MSC to be applied on land, buildings and non-severable equipment.
Continental Foundry and Machine Co. Coraopolis, Penna. \$2,633,000	Army	Cast armor for tanks	Transferred to FWA.
Continental Foundry and Machine Co., East Chicago, Indiana \$5,981,000	Army	Cast armor for tanks	Surplus
Copperweld Steel Co Warren, Ohio \$9,608,000	Bary	Steel ingots and plates	Surplus. Under interia lease to Copperweld Steel Co.
Copperweld Steel Co. Warren, Ohio \$636,000	Bavy	Heat treatment of steel	Surplus. Under interim lease to Copperweld Steel Co.
Copperweld Steel Co. Warren, Ohio \$1.815,000	Bavy	Machine turned steel	Surplus. Under interim lease to Copperweld Steel Co.
Copperweld Steel Co. Warren, Ohio \$7,011,000	Bavy	Pig iron & steel billets	Surplus, Under interim lease to Copperweld Steel Co.
Cornhusker Ordnance Works Grand Island, Neb. \$22,918,000	Army		Non-surplus. MSC to be applied to entire installation (Held by Army.)
Curtiss-Wright Corp. Kenmore, N. Y. \$3,552,000	Air Force	Air- craft	Surplus. Used by WAA for ware-house purposes.
Curties-Wright Corp. Louisville, Kentucky \$13,944,000	Navy	Air- frames	Sold March 1946 to Internations Harvester Co. under modified ESC.
Delta Shipbuilding Co. New Orleans, Louisiana \$12,849,000	Navy	Ships	Surplus. Portions leased to Shelby Construction Co. to November 1950 and to M.S. Kaplan Co. to April 1949; portions under interim lease.
Diamond Magnesium Corp. Painesville, Ohio \$6,241,000	Air Force	Magnesium	Transferred to FWA.

SPONSOR IN NIR

Domestic Manganese and Development Co. Butte, Montana \$297,000	Havy	Wanganese carbonate ores	Surplus. Under interim lease to Domestic Manganese and Development Co.
Douglas Aircraft Corp. El Segundo, Calif. \$981,000	Havy	Aircr	aft Transferred to FWA
Dow Chemical Company Buy City, Michigan \$1,773,000	Havy	Magnesium send castings	Surplus
Dow Chemical Company Freeport, Texas \$8,230,000	Air Force	Magnesium	Line and power facilities sold to Dow Chemical Co. subject to modified NSC, October 1946, Magnesium facilities transferred to FWA 13 October 1948 under Public Law 883, 80th Congress and sold by FWA to Dow Chemical Co. February 1949, subject to NSC.
Dow Magnesius Corp. Velasco, Texas \$56,363,000	Air Force	Magnesium	Chlorine, lime and power facilities sold to Dow Chemical Co., subject to modified MSC December 1946. Magnesium facilities trans- ferred FWA.
Drave Corporation Wilmington, Del. \$14,554,000	Havy	Landing craft	Non-surplus, Parts leased by Mavy. Disposal of remainder to contractor being effected by Mavy.
DuPont de Nemours & Co. Leomister, Mass. \$771,000	Havy	Chemicals	Surplus
Eaton Manufacturing Co. Saginaw, Michigan \$4,803,000	Savy	Aircraft engine parts	Sold to Eaton Mfg. Co. in Oct. 1946, subject to MSC. Portion sold to Eaton Mfg. Co. prior to application of MSC
Eaton Manufacturing Co. Cleveland, Ohio \$7,753,000	Havy	Crank shafts for air- craft engines	Sold to Gabriel Corp. in September 1948, subject to MSC.
Electro-Metallurgical Co. Spokane, Wash. \$8,938,000	Air Force	Magnesium	Leased through October 1953 (except quarry) to Chronium Mining and Smelting Corp. (for Ferro-Alloys) and Pond Oreille Mining Co.(for Zinc) subject to HSC.
Emerson Electric Mfg. Co. St. Louis, Missouri \$6,057,000	Air Force	Oun turrets (air- oraft)	Najor portion leased to March 1951 to Emerson Electris Mfg. Co. with option to pur- chase. Remainder under interis lease to Emerson Electric Mfg. Co.
Extruded Metals, Inc. Grand Rapids, Mich. \$2,776,000	Army	Aluminum fabrica- tion	Leased to May 1951 to Reynold Metals Company with two year renewal option and option to purchase. If purchase option not exercised, MSC to be apply upon termination of present lease.
Fairbanks-Morse Co. Beloit, Wisconsin \$8,148,000	Navy	Harine Diesel engines	Sold 1 August 1947 to Fairbank Morse Co. subject to MSC.
Fairbanks-Morse Co. Freeport, Ill \$1,561,000	Havy	Marine Diesel engines	Sold 1 October 1947 to Fair- banks-Morse Co. subject to MSC.
Forrell-Birmingnam Co. Fuffalo, W. Y. \$2,069,000	Bavy	Gear generat and rotatin element	
Frontier Bronze Co. Niagara Falls, M.Y. \$155,000	Navy	Aluminus alloy (sand cast)	Sold in September 1947 by Department of Navy subject MSC.

	•			NEWS OF
٩	PACILITY	SPONSOR IN NIR	PRODUC	r status
d.	Fairchild Engine and Atrplane Corp. (Ranger Aircraft Div.) Farmingdale, N. Y. \$6,137,000	Navy	Aircra: engine and parts	
	Ford Motor Co. Willow Run, Mich. \$59,870,000	Air Force	Bombers and sub- assemblic	Water and severage disposal facilities sold to City of 18 Tpsilanti. Thirteen temporary buildings, heating equipment and rail- road trackage sold to Kaiser- Fraser without MSC. Remainder sold December 1948 to Kaiser-Fraser Corp. subject to MSC on land, buildings and non-severable equipment.
to er ngress	Gary Armor Plate Plant Gary, Indiana \$21,736,000		Armor	Transferred to FWA.
949, F 946, 800-	General American Transportation Corp. (Jacksonville Oil Terminal) Jacksonville, Florida \$4,043,000		Oil pipeline	Surplus. Under revocable lease to Navy pending acquisition by Department of Navy.
nd by nder ectal	General Electric Co. Iokomo, Indiana \$2,943,000 General Engineering and Drydock Co. San Francisco, Calif.	Navy	D C gen- erators for DE's Ship repair	Surplus, Under interin lease to General Electric. Hon-surplus. Disposal to General Engineering being effected by Mavy.
in	Seneral Machinery Corp Eamilton, Ohio \$3,978,000			Sold by Mary Department in September 1948 to Lina Hamilton Corp. (successor to General Machinery) with NSC.
isc. ifg. in of	General Metals Corp. Oakland, Calif. \$1,989,000	Navy	Steel Casting	Sold October 1948 to General Metals Corporation with MSC
to	General Motors Corp. (Gleveland Div.) Cleveland, Ohio \$8,192,000	Bavy	Ship propulsion equipment (Diesel	by Mavy, April 1948, with
ond inc)	Sameral Motors Corp. (Fisher Body Div.) Grand Blanc (Flint) Michigan \$25,000,000	Army	motor	Major portion leased through March 1951 to General Motors with five-year remewal option so and option to purchase entire placor (including unleased vacant land) subject to MSC on land, buildings and building installations.
nteris c Mig. ynolis year n to	General Motors Corp. Kings Mills, Obio \$4,657,000	Navy	Starting motors & genera- tors for marine engines	Leased to Electric Auto Lite Co. to January 1951, with purchase option.
appli	General Motors Corp. (Charrolet Div.) Seginaw, Mich \$2,325,000	Air Force	Aluminum	
air-	General Motors Corp. (Chevrolet Division) Plant No. 1 Tonawanda, New York \$8,784,000	Air Force	Aircraft engines	Sold to Playboy Motor Co. January 1948, subject to ESC on land and buildings only.
moved r sold	\$638,000	Bavy	Aircraft	Portion surplus. Portion occupied under interim use permit by U.S.Treasury Depart- ment for warehousing purposes. Airport portion, non-surplus.
balan	Inc. Oakland, California 1.996.000	Navy	Ship repair	Sold by Navy to City of Oakland, California, with modified MSC.
ibject (Ryde Windlass Company Bath, Maine \$734,000	Havy	Deck machinery	Sold August 1947 to Hyde Windlass Company, subject to modified MSC.

FACILITY	SPONSOR IN NIR	PRODUC		STATUS
Heppenstall-Eddystone Corporation Eddystone, Penna \$7,182,000	Navy	Heavy forgings and die blocks	tiple tenancy	ary 1949. Small
Howard Foundry Com- pany, Inc. Chicago, Illinois \$2,587,000	Navy	Magnesium castings	Sold July 194 Foundry Co. w	
I-T-E Circuit Breaker Co. Philadelphia, Pa. \$1,607,000	Navy	Electric control devices	Sold Dec. 22, to I-T-E Circ Company subje	uit Breaker
Jack & Heintz, Inc. (Plant No.3) Bedford, Ohio \$2,800,000	Savy		Leased to Jac through Febru with purchase	ary 1951,
Jack & Heintz, Inc. (Plant No.4) Bedford, Ohio \$1,488,000	Navy	Gyro- flight instru- ments	Leased to Jac through Febru with purchase	ary 1951,
Jacobs Aircraft and Engine Co. (Firestone Tire & Rabber Co.) Pottstown, Penna. \$10,220,000	Air Force	Aircra	January l option. I not exerc applied of	Firestone through 953, with purchase f purchase option ised, MSC to be in land, buildings overable equipmen
Jeffersonville Boat & Machine Co. Jeffersonville, Indiana \$3,742,000	Ravy	Escort vessels and landing craft		7 to Jeffersonville Company, sub- ied MSC.
Jones Construction Co., J. A. (Wainwright Shipyard) Panama City, Florida \$7,864,000	Navy	Ships		to be applied ament portion related
Maiser Shell Plant Fontana, California \$5,647,000	Navy	Forgings, machining and heat treating of shells	Forge & Pipe subject to B	1948 to Taylor of Co., Chicago. SC modified to enosing furnaces.
Merotest Hammfactur- ing Co. Pittsburgh, Pa. \$653,000	Mavy	Steel Valves	Departs	combar 1947 by Ma ent to Merotest turing Co., subjec
King Machine Tool Co. Cincinnati, Ohio \$1,874,000	Navy	Machine tools		947 by Navy NSC to American ry Co.
Koppers, Inc. (Bartlet Hayward Plant) Baltimore, Md. \$1,300,000	Army	40 MM gun carriages	Storage Com	1948 to Transit pany, subject and and buildings,
Kropp Forge Company Cicero, Illinois \$1,287,000	Air Force	Drop hammer capacity for steel forgings	Sold August subject to	1948 to Kropp,
Ladiah Drop Forge Co. Cudahy, Wisconsin \$3,347,000	Air Force	Drop hammer capacity for steel forgings	Sold May 19 ject to mod	47 to Ladish sub- ified FSC.
Lehigh Foundries, Inc. Easton, Penna. \$1,575,000	Army	50 MM & 81 MM . shell casings	Foundries,	ay 1952 to Lehigh subject to modi- ith option to
Lima Tank Arsenal Lima, Ohio \$1,169,000	Army	Medium tanks	Hamilton Co	948 to the Lins- rp. (successor o.Works), sub- for five years.
Lockheed Aircraft Corp Van Ruye, California \$3,458,000	. Havy	Aircraft modifica- tion and repair	Sold to Cit California property.	y of Van Muys, as airport

Solar A Des Mois \$1,681,0

Southern Corp. Carland, \$1,245,

Sperry (Inc... Great No. \$19,000

Standard Company Madison, \$23,025,

Sterling Buffalo, \$585,000

Studebal Chicago \$25,318

Studeba South B \$50,130

Sun Shi Drydock Chester \$23,949

Sundstr fool Co Reckfor \$427,00

Symingt Depew, \$1,256,

Tinken Co.. Detroit \$3,671,

finken Co., Melvind \$5,194,

Minken ing Com Columbu \$1,217,

United (Chance craft D Stratfo: \$3,151,

PACILITY	IN NIR	PRODUC	ot status	FACILITY	SPONSOR IN NIR	PRODUCT	STATUS
Magnesium Reduction Company (assignce of National Lead Co.) Luckey, Ohio	Air For	ce Magne	eium Transferred to FWA	Phillips Petroleum Co. (Rock Pam Pipeline) Borger, Texas \$950,000	Muni- tions Board	Pipeline	Sold to Phillips Petroleum Co. in November 1948, sub- ject to NSC for ten years.
\$2,317,000 Martin Company,Glean L. Beltimore, Maryland	Navy	Airplanes	Mon-surplus. In production (Held by Department of Mavy.)	Pine Bluff Arsenal (2.94 mile gas line) Pine Bluff, Arkansas	Army	Pipeline	Surplus. NSC to be applied to guarantee that current and future demands of the Arsenal will be met at a cost to the Government which would not exceed current
\$2,217,000 McDonnell Aircraft Corp. (South Portion) St.Louis, Mo.	Havy	Aircraft	Sold to City of St.Louis in March 1947, subject to MSC for two years from date of sale.	2			prevailing rates, and that the Government will be given the benefit of any subsequent reduction in prevailing rates.
\$10,238,000 McKiernan-Terry Company	Y Navy	Steering	Sold December 1947 by Mavy	Pittsburgh Steel Foundry Corp. Glassport. Pa. \$7,562,000	Army	Steel	Sold May 1948 to Pittsburgh Steel Foundry Corp., subject to NSC.
Harrison, New Jersey \$2,559,000		gears, anchors and windless- catapults	Department to McEiernan- i Terry Company, subject to NSC.	Powell Company, Wil- liam Cincinnati, Ohio \$1,154,000	Navy	Steel valves	Sold May 1947 to William Powell Company, under pur- chase option, subject to modified NSC.
Menasce Manufacturing Company Burbank, California \$1,866,000		Aircraft landing gear struts	Leased to June 1951 to Memasco, subject to MSC, with two-year remewal option and option to purchase.	Pullman Standard Car Manufacturing Co. Chicago, Illinois \$5,495,000	Navy	Aircraft sub-assem- blies (Wings,	Leased to General Motors to December 1951 with renewal options extending to Decem- ber 1956, and option to
Midwale Company (Baldwin Locomotive War Bicetown, Pa. \$1,959,000 Moore Drydock Co.	Eavy Bavy	Bombs, guns, ordnance, projectiles	modified NSC to RFC for resale to Potts-Farrington, Inc. and Wiedemann Machine Company.	Pullman Standard Car Mfg. Co. (Calumet Harbor Yard) Chicago, Illinois	Navy	Shipyard (Sub-chasers; Minesweepers)	Griswold & Batman, Inc.,
(West Yard) Oakland, Calif. \$17,350,000	aavy		Surplus. Several interim leases in effect. East Yard removed from MSC by Mavy Movember 1948.	\$4,774,000 Remington-Rand, Inc., Johnson City, N. Y.	Air Force	Aircraft propellers	and to Dealers Transport Company. Leased to General Micc- tric Co. to November
Muskegon Moto: Specialties Corp. Muskegon, Nich. \$125,000	Bavy	for engines	Sold May 1947 to Madison Manufacturing Company, subject to modified NSC applied to land and	\$4,905,000 Republic Steel Corp.	Army	Steel	1953, subject to MSC, with five-year renewal option. Sold April 1947 to
New England Lime Co. Canaan, Conn. \$4,391,000	Air Force	Magnesium	Duildings only. Transferred to FWA.	South Chicago, Ill. \$92,500,000			Republic Steel Corp subject to modified MSC.
New England Ship- building Corp. (So. and East Yards) South Portland, Maine \$23,179,000	Navy	Ships	Sold June 1948 to Dinger Contracting Company sub- ject to NSC. NSC modified by Munitions Board October 1948.	Revere Copper & Brass Co., Inc. Helethorpe, Md. \$2,704,000	Air Force	Aluminum and magnesium extrusions	Surplus
Nicaro Fickel Company Nicaro, Cuba \$33,500,000		Bickel	Surplus.	Revere Copper & Brass Company, Inc., Chicago, Illinois \$11,292,000	Army	Ammunition brass and cups	Surplus
Norfolk Shipbuilding & Drydock Co. Norfolk, Virginia \$6,014,000	Navy	Ship repair	Non-surplus; held by Navy. Department of Navy negotiating with con- tractor for long-term lease.	Ridgewood Steel Co. Cincinnati, Ohio \$8,800,000	Army	Oun forgings	Portion withdrawn Febru- ary 1948 by Department of Army for National Guard use. Remainder
Morthwestern Aero- nautics Corp. St. Paul, Minn. \$882,000	Navy	Air-craft (Gliders)	Lessed to March 1951 to Engineering Research Associates, Inc.	Rohr Aircraft Corp. Chula Vista, Calif. \$1,946,000	Navy	Aircraft assemblies; bomb racks	Leased'to Rohr to January 1954, subject to NSC on land and buildings only.
Odenbach Shipbuild- ing Corporation Rochester, New York \$633,000	Army	Gasoline tankers	Sold November 1948 to Oden- bach Holding Corp., subject to MSC.			and bomb-bay	Cafeteria and warehouse areas sold July 1946. Hangar and scaplane ramp in surplus inventory.
Ohio Steel Foundry Co Lima, Ohio \$6,202,000	. Army	Steel castings	Leased to April 1949 to Ohio Steel Foundry Company with two year renewal option.	Scullin Steel Co. St. Louis, Ho. \$3,115,000 Scullin Steel Co.	Army	castings	Sold October 1948 to Scullin Steel Co., subject to NSC. Surplus. Building #31 leased
Ohio Steel Foundry Co Lima, Ohio \$3,790,000		Steel castings	Surplus. Under interim lease to Ohio Steel Foundry Co.	St. Louis, Mo. \$13,192,000	24	castings	to January 1952 and two stor- age sheds under interim lease to St. Louis School for Electricity and Refrigeration.
Pacific Car & Foundry Company Renton, Wash. \$5,610,000	Army	armor steel castings and tanks (N-4)	Surplus. Under interim lease to Pacific Car & Foundry Co.				Inc., for experimental pur- poses. Open hearth facilities leased to Scullin Steel Co. to September 1950 with MSC. with one year renewal option.
Pantex Ord- nance Plant, Amarillo, Texas \$17,000,000	Army	Ammuni- tion loading	Surplus. Portions leased to Texas Technological Callage to June 1953 and February 1954, subject to modified NSC. NSC to be applied on re- mainder. Entire installation classified as non-industrial.	Sealed Power Corp. Muskegon, Michigan \$593,000	Air Force	rings ((aircraft),	Sold June 1948 to Sealed Power Corporation, subject to NSC. Parking lot (not subject to MSC) sold January 1949 to Sealed Power Corporation.
Permanente Metals Corporation Manteca, Calif. \$3,507,000	Air Force	Hagnesium	Transferred to FWA-	Smith Corp., A.O. Milwaukee, Wis. \$2,125,000	Air Force	Landing	Leased to General Motors Corp. (A.C.Spark Plug Div.) to September 1953, subject to MSC.

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FACILITY	SPONSOR IN NIR	PRODUC	STATUS	FACILITY	SPONSOR IN NIR	PRODUC	T STATUS
	7		1-				
Solar Aircraft Co. Des Hoines, Iowa \$1,681,000	Air Force	Exhaust manifolds	Sold to Solar Aircraft Corp. subject to MSC.	United States Rub- ber Company Los Angeles, Calif. \$1,330,000	Navy	Electric cables	Non-surplus (Held by RFC.)
Southern Aircraft Corp. Garland, Texas \$1,245,000	Havy	borb-bays, control surfaces	s, Leased to Mar.1951 to Southern Aircraft Corp. with option to purchase.	Wickers, Inc., Detroit, Michigan \$9,865,000	Navy	Hydraulic equipment for air- craft gun	Sold July 1948 to State of Michigan for National Guard use
Sparry Gryoscope Co., Inc., Great Neck, L.I., N.Y. \$19,000,000	Havy	Aircraft parts (sights, turrets, indica- tors, etc.)	Portion leased to United Nations through June 1949. Remainder leased to Sperry Gyroscope Company through August 1949, with renewal option to extend to August 1951, and option to purchase entire plant.	Waco Aircraft Co. Troy. Ohio \$739,000	Air Force	turrets	Leased to B. F. Goodrich to August 1951 with five-year renewal and option to pur- chase.
			and areas of presents	Wah Chang Trading	Navy	Tungsten	Mon-surplus. Modified MSC
Standard Steel Spring Company, Madison, Ill. \$23,025,000	Air Force	Rear axles for motor	Leased to Western Reserve Steel Corp., subject to MSC to January, 1954, with five-year renewal option and option to purchase,	Corp., Glen Cove, New York \$675,000		ore treatment	to require maintenance of capacity only (Held by RFC.)
\$65,000,000	,	vehicles	subject to NSC. Off-site elec- tric power equipment released from NSC restrictions in February 1949.	Warren City Mfg. Co. Warren, Ohio \$6,000,000	Navy	Marine Diesel an- gine con- necting	Sold by Havy in Hovember 1948 to Warren City Mfg.Co. with MSC.
Sterling Engine Co.	Navy	Marine	Non-surplus (Navy). Disposal to			rods	
guffalo, New York \$585,000		engines	Sterling Engine Co. being effected by Navy.	Wenatchee Alloys, Inc. Rock Island, Wash, \$1,444,000	Navy	Ferro- silicon	Sold August 1948 to Keckuk Electro-Metals Co., subject to modified WSC to require
Studebaker Corp. Chicago, Ill. \$25,318,000	Air Force	Aircraft engine parts	Sold December 1948 to Mational Tea Co., subject to NSC, and sub- ject to lease to Western Electric Co. to December 1950.			. %	maintenance of ferrosilicon capacity.
Studebaker Corp. South Bend, Ind. \$50,130,000	Air Force	Aircraft engines	Sold October 1947 to Stude- baker Corp. subject to modi- fied NSC on land and build- ings only.	Westinghouse Electric Manufacturing Co., Lansdowne, Maryland \$3,006,000	Havy	Radio & communi- cations equip- ment	Leased to Westinghouse Electric Manufacturing Co. to Hovember 1953, subject to MSC, with option to purchase subject to MSC.
Sun Shipbuilding & Drydock Company Chester, Pa. \$23,949,000	Havy	Ships.	Surplus - Portion under interim lease to Sun Shipbuilding and Drydock Co.	Wright Aero- nautical Corp., Lockland, Chio \$55,300,000	Alr Force	Aircraft engines	All except three foundries sold December 1947 to Electric Auto-Lite Company, subject to modified MSC on
Sundstrand Machine fool Co. Rockford, Ill. \$427,000	Air Force	Hydraulic equip- ment for gun turrets	Sold August 1948 to Sund- strand, subject to MSC.				land and buildings only. Three foundries transferred to Department of Air Force for war reserve retention,
Symington-Gould Corp. Depew. New York \$1,256,000	Army	Armor castings	Sold June 1948 to Syming- ton-Gould Corp. subject to modified MSC for ten years on land and buildings only.	Wright Acro- neutical Corp. (South Portion-Plant # East Paterson, N. J. \$3,945,000	Air Force	Aircraft engines	Sold to Allen B.Dumont Lab. Inc., October 1948, subject to modified WSC on land and buildings.
finken Detroit Axle Co., Detroit, Mich. \$3,671,000	Army	Arles and transfer cases	Leased to Timken Detroit Axle Co. through April 1949, with option to pur- chase,	Wyman-Gordon Pro- ducts Corp. Harvey, Illinois	Air Force		Sold March 1948 to Wyman- Gordon Products Corp., sub- ject to MSC.
				\$7,340,000		mer capa- city)	
Pinken Detroit Axle Co., Melvindale, Mich. \$5,194,000	Army	Forgings	Leased to Timken Detroit Axle Co. to April 1949, with option to purchase.	Wyman-Gordon Products Corp., North Grafton, Hass. \$4,058,000	Air Force	Magnesium aluminum forgings (drop ham- mer capa-	
finken Roller Bear- ing Company, Columbue, Ohio \$1,217,000	Air Force	Tapered roller bear- ings	Sold September 1947 to Tinken Roller Bearing Co., subject to modified RSC.	Toungstown Sheet & Tube Co. Indiana Harbor, Ind. \$1,885,000	Navy	city) Steel ingots	Sold June 1948 to McLouth Steel Corpora- tion for removal to Detroit, subject to
United Aircraft Corp. (Chance Vought Air- craft Division) Stratford. Conn. \$3,151,000	Havy	Airplanes	Surplus. Part under interimal lease to September 1948 to United Aircraft Service Corp. Part (approximately half) sold June 1947 to contractor by Hary, with MSC.	Tin Processing Corp. Texas City, Texas \$7,650,000	Army	Tin smelt- ing and refining	NSC modified to permit removal, Non-surplus (Held by HFC.)

THE above listing does not include all plants in the National Industrial Reserve. Plants not closely associated with the metal working industry were not included in THE IRON AGE compilation.

The complete list includes 236 plants or portions of plants.

Steel Company Earnings Rose 32 pct. in 1948 on Sales of \$8.5 Billion

Sales Volume Gained 22 Pct While 24 Pct Was Added To Surplus Account

By GEORGE F. SULLIVAN Pittsburgh Regional Editor

Pittsburgh

• • • The 1948 profits of 26 steel companies which account for 91 pct of the nation's steel ingot capacity were 32.4 pct higher than they were in 1947. Few steelmakers expect 1949 to be as profitable as 1948; this looks like a "good" year for steel but it will take something not now in the cards to top 1948's earnings.

Sales and operating revenues of the 26 companies reported upon here amounted to a record \$7,859,579,001 in 1948. This was \$1,421,979,881, or about 22 pct, more than 1947 sales and operating revenue. Their 1948 net income was \$522,734,361. For the entire industry, total sales were approximately \$8.5 billion and profits about \$575 million.

Since shipments were up only 4.6 pct, much of the profit gain came from more efficient operations and higher steel prices. It should be understood too that many steel companies have subsidiaries that do not make steel though their sales and profits are consolidated with those of the parent company.

The full effects of improved raw materials and processes were not obvious in the 1948 operating picture. The industry as a whole was only able to push operations from 92.9 to 94 pct of rated steelmaking capacity. Nevertheless, the 26 steelmakers whose financial story is told at the right, were able to produce about 3.4 million net tons, or 4.4 pct more raw steel than they made in 1947. In terms of finished steel there was an estimated gain of 2,650,000 net tons.

Despite a 32.4 pct increase in net income, these companies boosted common stock dividends by only 7.1 pct. Surplus, however,

The First Dozen

Pittsburgh

• • • Net income, in thousands of dollars, of the first 12 steel companies (rated in order of reported 1948 profits) with the percentage of increase in 1948 over 1947, is as follows:

	1948	1947	Pct Increase 1948 over 1947
U. S. Steel Corp	\$129,628	\$127,098	2.0
Bethlehem Steel Corp	90,348	51,088	76.8
Republic Steel Corp	46,438	31,018	49.7
National Steel Corp	40,122	26,839	49.5
Inland Steel Corp	38,607	29,889	29.2
Youngstown Sheet & Tube Co	35,712	26,300	35.8
Armco Steel Corp	32,031	25,002	28.1
Jones & Laughlin Steel Corp	31,222	19,225	62.4
Wheeling Steel Corp		11,651	29.2
Sharon Steel Corp		6,722	37.4
Allegheny Ludlum Steel Corp	6,833	6,003	13.8
Colorado Fuel & Iron Corp	6,182	5,089	21.5

rose almost 24 pct. Working capital was upped by 5.4 pct, while invested capital was increased by 15.3 pct. Though many stockholders have complained of being treated like country cousins the reason is obvious: Generally speaking, the industry is battening down the hatches in case of rough weather ahead.

Provisions for Federal income taxes were increased by about 41 pct. This tax alone amounts to \$6.24 on every ton of finished steel sold last year.

Reflecting increased prices, higher operating rates and bigger scrap stocks, the overall inventories of steel companies were substantially higher at the end of 1948 than they were a year before that. Money tied up in inventory rose about 19 pct for the industry as a whole though in some companies the increase was as much as 40 pct. Part of this gain came from an increase in semifinished products. Recently, stocks of billets, blooms, slabs,

sheet bars and tube rounds at finishing mills have often been too low for efficient mill operations.

Steel executives are pressing for a law or an Internal Revenue Dept. ruling which will permit them a more realistic depreciation policy. Meanwhile there is little uniformity throughout the industry in treatment of this item. Some companies have anticipated increased replacement costs by boosting surplus, retaining more money in the business. Some have allotted specific sums for this purpose, despite a frown from the American Institute of Accountants and no tax credit from Washington. U.S. Steel has a third method, one of accelerated depreciation based on cost instead of purchasing power recovery.

Because of these various ways of treating reserves for depreciation, and hence of net income, the net income figures shown here are not all strictly comparable. Nevertheless they are the figures as reported.

THE IRON AGE Financial

COMPANY Year	Ingot Capacity Net Tons ¹⁶	Ingot Production Net Tons	Percent of Capacity Operated	Steel Shipments Net Tons	Net Sales and Operating Revenue	Provision for Federal Income Taxes	Net Income	Net Income Percent of Sales	Number Commo Shares Outstand
S. Steel Corp	31,300,000 31,200,000	29,300,000 28,600,000	93.8 96.7	20,700,000 20,200,000	\$2,481,508,535 2,122,786,243	\$109,000,000 91,000,000	\$129,627,845 127,098,148	5.2	8,703,25 8,703,25
ethlehem Steel Corp 1948 1947	13,800,000 12,900,000	13,411,492 12,806,940	97.2 99.3	9,993,481 9,403,067	1,315,188,536 1,034,856,444	57,225,000 31,000,000	90,347,560 51,088,375	6.9 4.9	8,954,98 8,954,98
epublic Steel Corp	8,600,000 8,600,000	8,324,172 7,987,170	96.8 92.9	6,405,581 6,073,125	772,000,047 649,824,006	34,000,000 23,250,000	46,438,382 31,018,410	6.0 4.8	5,882,60 5,669,92
ones & Laughlin Steel Corp1948 1947	4,815,000 4,740,000	4,633,558 4,520,387	97.0 95.0	3,695,414 3,486,305	446,057,301 350,132,366	18,950,000 11,482,000	31,222,451 19,225,184 ³	7.0 5.5	2,476,50 2,476,50
ational Steel Corp	4,050,000 3,900,000				436,522,051 328,957,189	33,300,000 19,270,000	40,121,506 26,838,788	9.2 8.2	2,453,90 2,230,81
oungstown Sheet & Tube Co. 1948 1947	4,002,000 4,002,000	3,966,099 3,959,343	99.1 98.9	2,982,057 2,853,801	381,742,264 308,571,405	25,400,000 16,635,000	35,711,732 ¹¹ 26,299,923 ¹¹	9.4 8.5	1,675,00 1,675,00
rmco Steel Corp	3,563,000 3,367,000	3,332,261 3,078,487	93.5 91.4	2,572,608 2,413,406	382,563,811 311,685,322	20,072,015 16,464,876	32,030,712 25,002,211	8.4 8.0	3,909,36 3,241,27
nland Steel Co	3,400,000 3,400,000	3,533,374 3,299,528	103.9 97.0	3,252,681 2,941,990	392,708,370 315,031,042	23,221,000 18,485,000	38,606,899 29,888,558	9.8 9.5	4,899,31 4,899,31
Charon Steel Corp	1,672,000 1,672,000	1,298,383 1,222,887	77.7 76.6	964,987 912,962	118,849,560 94,130,807	5,811,000 4,225,000	9,234,983 6,722,019	7.8 7.1	617,24 617,24
Colorado Fuel & Iron Corp. ⁴ 1948 1947	1,472,000 1,448,640	1,395,717 1,369,460	94.8 94.5	1,225,027 1,046,008	118,858,896 94,740,442	3,659,100 2,676,815 ³	6,181,777 5,088,676 ³	5.2 5.4	1,127,18 1,126,77
Wheeling Steel Corp. 1948	1,409,000 1,409,000	1,303,424 1,285,832	92.5 91.3		154,953,406 131,721,128	10,000,000 7,760,000	15,050,045 11,651,579 ³	9.7 8.8	569,55 569,55
Crucible Steel Co. of America 1948	1,277,133 1,253,650				131,360,030 110,503,836	2,748,021 1,084,466	3,596,177 2,064,887	2.7,	488,68 443,68
Pittsburgh Steel Co	1,072,557 1,072,557	976,218 1,006,888	91.0 93.9	774,108 737,978	102,858,785 85,873,537	4,350,000 3,175,000	5,484,090 4,019,637	5.3 4.7	508,91 508,91
Portsmouth Steel Corp	660,000 660,000	647,816 667,011	98.2 101.1	523,096 528,968	58,904,664 49,459,952	2,600,000 2,358,000	4,511,550 3,944,969	7.7 8.0	1,273,20 1,301,55
ukens Steel Co.5	624,000 624,000	647,876 637,347	103.8 102.1	442,550	61,460,919 48,591,687	1,675,000 1,746,200	2,411,604 2,697,117	3.9 5.6	317,97 317,97
Granite City Steel Co	620,000 500,000	493,720 440,398	79.6 88.1	408,449 347,047	41,370,688 25,869,719	2,370,000 880,000	3,267,707 1,941,899	7.9	382,48 382,48
Copperweld Steel Co. 1948	554,400 480,000				75,570,115 53,303,245	3,414,500 1,179,500	4,989,019 ¹³ 1,546,711	6.6 ¹⁸ 2.9	514,86 514,86
Man Wood Steel Co. 1948	550,000 550,000	530,691 449,945	96.5 81.8	425,114 323,853		2,842,000 1,238,000	4,116,444 1,955,446		483,76
Γhe Midvale Co	517,322 517,322	64,962	12.6 16.2		10,509,015 14,829,373	None None	1,665,718 1,186,727	15.9 8.0	600,00
Allegheny Ludlum Steel Corp. 1948 1947	496,360 496,360	84,020 462,306 411,107	93.1 82.8	428,000 357,000	126,780,255 106,783,183	4,601,358 4,068,068	6,833,384 6,002,657	5.4 5.6	1,288,83 1,288,83
Barium Steel Corp	441,000 387,000	390,000 318,000	88.4	310,000 280,000	51,257,670 41,365,948	2,048,176 1,104,564	2,700,000 ¹² 1,689,213		1,978,83 2,001,38
Continental Steel Corp. 1948 1947	364,000 364,000	317,927	82.2 87.3 87.0		29,743,309 27,086,139	1,200,000 890,000	1,625,150 1,296,874	5.5 4.8	501,30 501,30
Rotary Electric Steel Co 1948 1947	340,000	316,644 247,658 201,556	94.5	227,280	18,940,250	1,500,000	2,496,859	13.2	192,9
aclede Steel Co1948	255,000 326,025	201,556	79.0 85.3	176,246 284,538	16,500,149 34,072,411 36,383,130	1,165,000	1,767,863	5.5	206,2
1947 Northwestern Steel & Wire Co. ⁸ , 1948	326,025 321,000	288,038 287,670	88.3	272,852	26,283,120 26,641,518	956,913	1,429,035	7.0	206,2 817,8
Keystone Steel & Wire Co 1948	321,000 302,400	261,045 298,882	81.3 98.8	265,264	21,185,519 34,504,429	1,319,000 2,060,598	1,932,747 4,167,550	9.1	817.8 1,875.0
1947 GRAND TOTAL 1948	302,400 86,549,197	288,561 80,565,700	95.4 94.0 ¹⁵		31,573,658 \$7,859,579,001	2,458,436 \$374,392,768	\$522,734,361	6.7	625,0 52,699.8
1947 Percent change, 1948 over 1947	$84,747,954 \\ +2.1$	77,153,400 +4.4	92.915	57,382,00012		265,250,838 +41.1	394,832,630 +32.4	6.1	50,041.5 +5.3

^{1.} Payable after 1 year.

^{2.} Plus 10 pct stock dividend.

^{4.} Fiscal years ended June 30.

Unless otherwise noted, 52 weeks ended Oct. 30, 1948;
 Oct. 4, 1947.

^{7.} Estimated tax carryback reductions \$506,727.

AGE Financial Analysis of the Steel

					,			
Provision for Federal Income Taxes	Net Income	Net Income Percent of Sales	Number of Common Shares Outstanding	Earnings Per Common Share	Common Dividends Declared	Number of Preferred Shares Outstanding	Preferred Dividends Declared	Funded Debt ¹
91,000,000	\$129,627,845	5.2	8,703,252	\$12.00	\$ 52,219,512	3,602,811	\$25,219,677	\$71,554,196
91,000,000	127,098,148	6.0	8,703,252	11.71	45,692,073	3,602,811	25,219,677	77,229,313
57,225,000	90,347,560	6.9	8,954,982	9.36	21,491,956	933,887	6,537,209	121,814,000
31,000,000	51,088,375	4.9	8,954,982	4.98	17,909,964	933,887	6,537,209	123,814,000
34,000,000	46,438,382	6.0	5,882,604	7.61	12,757,289	282,143	1,692,858	70,370,270
23,250,000	31,018,410	4.8	5,669,922	5.17	11,339,812	282,143	1,692,858	79,780,699
18,950,000	31,222,451	7.0	2,476,502	12.01	5,324,479	293,568	1,467,840	60,000,000
11,482,000	19,225,184 ³	5.5	2,476,502	7.17	4,953,004	293,568	1,467,840	60,094,664
33,300,000	40,121,506	9.2	2,453,900	16.35	11,154,085 ²	None	None	40,000,000
19,270,000	26,838,788	8.2	2,230,817	12.03	8,923,068	None	None	40,000,000
25,400,000	35,711,732 ¹¹	9.4	1,675,008	21.32 ¹¹	8,375,040	None	None	30,000,000
16,635,000	26,299,923 ¹¹	8.5	1,675,008	15.70 ¹¹	8,375,040	None	None	30,000,000
20,072,015	32,030,712	8.4	3,909,361	8.00	7,783,051	199,930	899,708	69,160,000
16,464,876	25,002,211	8.0	3,241,276	7.44	6,481,046	199,930	899,709	37,000,000
23,221,000	38,606,899	9.8	4,899,315	7.88	12,248,288	None	None	73,250,000
18,485,000	29,888,558	9.5	4,899,315	6.10		None	None	54,000,000
5,811,000	9,234,983	7.8	617,242	14.96	1,543,103	None	None	9,900,000
4,225,000	6,722,019	7.1	617,242	10.89	1,234,482	None	None	4,000,000
$3,659,100$ $2,676,815^3$	6,181,777	5.2	1,127,185	5.04	1,408,554	501,403	502,785	8,800,000
	5,088,676 ³	5.4	1,126,775	4.07	957,789	502,818	502,830	9,750,000
10,000,000	15,050,045	9.7	569,559	23.24	1,566,287	363,166	1,815,830	42,103,000
7,760,000	11,651,579 ⁸	8.8	569,559	17.27	996,728	363,166	1,815,830	42,850,000
2,748,021	3,596,177	2.7	488,683	4.15	None	313,576	1,567,855	25,007,500
1,084,466	2,064,887	1.9	443,684	1.12	None	313,579	1,567,980	24,505,000
4,350,000	5,484,090	5.3	508,917	9.07	None	164,382	823,760	7,020,640
3,175,000	4,019,637	4.7	508,917	6.20	None	164,382	481,467	6,735,720
2,600,000 2,358,000	4,511,550 3,944,969	7.7 8.0	1,273,200 1,301,550	3.54 3.03	1,280,188 979,212			
1,675,000	2,411,604	3.9	317,976	7.35	476,964	None	None	None
1,746,200	2,697,117	5.6	317,976	8.92	445,166	None	None	None
2,370,000	3,267,707	7.9	382,488	8.54	860,603	None	None	2,882,525
880,000	1,941,899	7.5	382,488	5.08	382,488	None	None	4,185,000
3,414,500	4,989,019 ¹³	6.6 ¹³	514,864	9.54 ¹³	1,390,133	28,880	76,952	None
1,179,500	1,546,711	2.9	514,864	2.85	411,891	32,460	81,852	3,125,000
2,842,000	4,116,444	8.7	483,767	7.78	483,662	70,363	353,084	6,300,000
1,238,000	1,955,446	5.4	200,000	7.26	None	71,824	1,221,008	None
None	1,665,718	15.9	600,000	2.78	1,048,949	None	None	None
None	1,186,727 ⁷	8.0	600,000	1.98	1,198,785	None	None	None
4,601,358	6,833,384	5.4	1,288,831	5.05	2,577,662	107,383	319,754	None
4,068,068	6,002,657	5.6	1,288,831	4.66	2,577,008	None	None	None
2,048,176	2,700,000 ¹²	5.3 ¹²	1,978,831	1.36^{12} $.84$	None	None	None	None
1,104,564	1,689,213	4.1	2,001,381		None	None	None	None
1,200,000	1,625,150	5.5	501,365	3.24	877,390	None	None	None
890,000	1,296,874	4.8	501,370	2.58	752,059	None	None	None
1,500,000	2,496,859	13.2	192,939	12.94	2,496,630 ²	None	None	None
544,000	903,360	5.5	167,025	5.41	None	None	None	731,654
1,165,000	1,767,863	5.2	206,250	8.57	721,875	None	None	2,309,673
956,913	1,429,035	5.4	206,250	6.93	515,625	None	None	2,437,500
1,180,000 1,319,000	1,858,790 1,932,747	7.0 9.1	817,825 817,825	2.27 2.36	817,825 1,104,064		6,5459	
2,060,598	4,167,550	12.1	1,875,000 ¹⁰	2.22 ¹⁰	1,875,000	None	None	2,000,000
2,458,436	4,672,934	14.8	625,000	7.48	1,898,750	None	None	2,500,000
\$374,392,768 265,250,838	\$522,734,361 394,832,630 +32,4	6.7 6.1	52,699,846 $50,041,811$ $+5.3$		\$138,530,237 129,376,342 +7.1	6,861,492 $6,760,568$ $+1.5$	\$41,277,312 41,494,805 -0.5	\$642,471,804 602,738,550 +6.6
	for Federal Income Taxes 109,000,000 91,000,000 57,225,000 31,000,000 34,000,000 23,250,000 18,950,000 11,482,000 25,400,000 20,072,015 16,464,876 23,221,000 18,485,000 5,811,000 4,225,000 3,659,100 2,676,8153 10,000,000 7,760,000 2,748,021 1,084,466 4,350,000 3,175,000 2,748,021 1,084,466 4,350,000 3,175,000 2,748,021 1,084,466 4,350,000 3,175,000 2,748,021 1,084,466 4,350,000 3,175,000 2,748,021 1,084,466 4,350,000 3,175,000 2,748,021 1,084,466 4,350,000 3,175,000 2,748,021 1,084,466 4,350,000 3,175,000 1,746,200 2,370,000 880,000 3,414,500 1,746,200 2,370,000 880,000 1,500,000 544,000 1,165,000 956,913 1,180,000 1,319,000 2,060,598 2,458,436 \$374,392,768 \$26,258,836	for Federal Income Taxes 3109,000,000 91,000,000 51,098,148 57,225,000 31,000,000 51,088,375 34,000,000 46,438,382 23,250,000 31,018,410 18,950,000 11,482,000 19,225,1843 33,300,000 40,121,506 19,270,000 26,838,788 25,400,000 16,635,000 26,299,92311 20,072,015 23,221,000 18,485,000 29,888,558 5,811,000 3,659,100 2,676,8153 10,000,000 3,760,000 3,175,000 3,175,000 3,175,000 3,175,000 3,175,000 3,175,000 3,175,000 3,175,000 3,175,000 3,175,000 3,175,000 3,175,000 3,175,000 3,175,000 1,675,000 1,746,200 2,411,604 2,697,117 2,370,000 880,000 3,144,500 1,765,718 1,104,564 1,104,564 1,238,000 1,165,718 1,180,000 1,165,718 1,180,000 1,165,000 1,296,874 1,200,000 1,296,874 1,500,000 1,165,000 1,165,000 1,165,000 1,165,000 1,165,000 1,165,000 1,165,000 1,165,000 1,165,000 1,165,000 1,165,000 1,296,874 1,200,000 1,319,000 1,858,790 1,319,000 1,858,790 1,932,747 2,060,598 2,458,436 \$522,734,361 394,832,630	for Federal Income Taxes Net Income Percent of Sales 3109,000,000 \$129,627,845 6.0 91,000,000 \$127,098,148 6.0 57,225,000 \$1,088,375 4.9 34,000,000 \$1,088,375 4.9 34,000,000 \$1,088,375 4.9 34,000,000 \$1,018,410 4.8 18,950,000 \$1,222,451 7.0 \$1,482,000 9,225,1843 5.5 33,300,000 40,121,506 9.2 \$2,400,000 35,711,73211 9.4 \$16,635,000 26,838,788 8.2 \$2,400,000 35,711,73211 9.4 \$16,635,000 38,606,899 9.8 \$2,221,000 38,606,899 9.8 \$3,485,000 9,234,983 7.8 \$4,225,000 6,181,777 5.088,6763 5.4 \$10,000,000 7,760,000 15,050,045 9.7 \$1,050,045 9.7 \$1,084,466 3,596,177 2.7 \$4,350,000 3,594,969 5.3 \$3,175,000 4,019,637 4.7 \$2,370,000 3,41,969 8.0 \$1,675,000 3,944,969 8.0 \$1,675,000 3,944,969 8.0 \$1,675,000 3,944,969 8.0 \$1,675,000 3,944,969 8.0 \$1,675,000 3,944,969 8.0 \$1,165,000 3,94	for Federal Income Income Taxes Net Income Percent of Sales Common Shares outstanding (109,000,000 91,000,000 91,000,000 127,098,148 6.0 \$129,627,845 6.0 \$8,703,252 8,70	Income			

146—THE IR nded Oct. 30, 1948;

Estimated tax carryback reduced charge to surplus to \$506,727.

^{8.} Fiscal years ended July 31.

^{9.} Preferred stock redeemed June 11, 1947.

^{10.} Split 3 to 1.

Before appropriating \$6,000,000 in 1948 a 1947 for higher replacement costs.

^{12.} Estimated.

el Industry, 1948-1947

DATA COVER OPERATIONS OF 26 COMPANIES REPRESENTING 91 PCT OF THE INGOT CAPACITY OF THE UNITED STATES AS OF JAN. 1, 1948

					100 a at 1000					STATES AS OF JAN. 1, 1948
nded lebt ¹	Preferred Stock	Common Stock	Surplus	Invested Capital	Working Capital	Capital per Ton of Ingot Ca- pacity	per Ton	Income per Ton of Ingot Produc- tion	Year	COMPANY
554,196	\$360,281,100	\$870,325,200	\$602,453,693	\$1,904,614,189	\$469,505,437	\$60.85	\$4.14	\$4.42	1948	U. S. Steel Corp.
229,313	360,281,100	652,743,900	497,846,337	1,588,100,650	548,648,098	50.90	4.07	4.44	1947	
814,000 814,000	93,388,700 93,388,700	283,574,430 283,574,430	268,208,157 188,459,762	766,985,287 689,236,892	280,644,542 290,114,970	55.58 53.43	6.55	6.74	1948 1947	Bethlehem Steel Corp.
370,270 780,699	28,214,300 28,214,300	138,189,928 130,309,141	163,970,323 134,591,348	400,744,821 372,895,488	148,633,092 124,517,061	46.60 43.36	5.40 3.60	5.58 3.88		Republic Steel Corp.
000,000	29,356,800	96,507,400	125,303,616	311,167,816	107,387,078	64.62	6.48	6.74	1948	Jones & Laughlin Steel Corp.
094,664	29,356,800	96,507,400	102,361,267	288,320,131	88,836,383	60.83	4.06	4.25	1947	
000,000	None None	61,347,500 55,770,425	167,457,222 144,066,831	268,804,722 239,837,256	98,162,348 73,371,176	59.73 61.50	9.91 6.88		1948 1947	National Steel Corp.
000,000	None	105,088,053	99,474,676	234,562,729	149,085,855	58.61	8.92	9.00	1948	Young stown Sheet & Tube Co.
000,000	None	105,088,053	78,137,984	213,226,037	119,354,087	53.28	6.57	6.64	1947	
160,000	19,993,000	39,093,612	127,431,754	255,678,366	112,533,281	71.76	8.99	9.61	1948	Armco Steel Corp.
000,000	19,993,000	32,412,764	107,094,839	196,500,603	76,821,865	58.36	7.43	8.12	1947	
250,000	None	62,500,000	95,561,697	231,311,697	121,275,990	68.03	11.35	10.93	1948	Inland Steel Co.
000,000	None	62,500,000	75,502,744	192,002,744	104,903,912	56.47	8.79	9.06	1947	
900,000	None	6,232,810	32,392,770	48,525,580	24,774,495	29.02	5.52	7.11	1948	Sharon Steel Corp.
000,000	None	6,232,810	23,761,861	33,994,671	18,599,902	20.33	4.02	5.50	1947	
800,000	10,028,067	5,635,925	42,478,406	66,942,398	19,094,581	45.48	4.20	4.43	1948	Colorado Fuel & Iron Corp.
750,000	10,056,357	5,633,875	34,874,261	60,314,493	17,217,825	41.64	3.51	3.72	1947	
103,000	36,316,600	28,477,950	48,649,214	155,546,764	56,388,428	110.40	10.68	11.55	1948	Wheeling Steel Corp.
850,000	36,316,600	28,477,950	36,981,286	144,625,836	52,778,524	102.64	8.27	9.06	1947	
007,500 505,000	31,357,600 31,357,900	12,217,077 11,092,097	24,836,603 22,807,983	93,418,780 89,762,980	32,541,895 32,472,422	71.80	1.65		1948 1947	Crucible Steel Co. of America
020,640 735,720	16,438,200 16,438,200	4,862,190 4,862,190	26,519,999 21,860,000	54,841,029 51,810,390	23,550,867 20,750,417	48.31	3.75	3.99	1948 1947	Pittsburgh Steel Co.
		1,352,500 1,352,500	17,948,475 15,060,241	19,300,975 16,412,741	9,361,587 8,882,540	29.24 24.87	6.84 5.98	6.96 5.91	1948 1947	Portsmouth Steel Corp.
None	None	3,179,760	14,686,885	17,866,645	8,939,351	28.63	3.86	3.72	1948	Lukens Steel Co.
None	None	3,179,760 ⁶	12,733,059 ⁶	15,912,819 ⁶	7,324,843	25.50	4.32	4.23	1947	
882,525	None	8,483,821	8,229,787	19,596,133	6,904,782	31.61	5.27	6.62	1948	Granite City Steel Co.
185,000	None	8,483,821	5,822,683	18,491,504	5,314,940	36.98	3.88	4.41	1947	
None 125,000	1,444,000 1,623,000	2,574,320 2,574,320	9,795,974 7,461,715	13,814,294 14,784,035	8,569,442 9,170,016	24.92 30.80	9.00 ¹³ 3.22		1948 1947	Copperweld Steel Co.
300,000	7,182,500	4,874,030	7,553,416	25,738,866	6,444,468	46.80	7.48	7.76	1948	Alan Wood Steel Co.
None	7,182,433	4,388,889	5,637,679	17,209,001	6,107,704	31.29	3.56	4.35	1947	
None	None	10,574,621	7,159,833	17,734,454	12,434,962	34.28	3.22	25.64	1948	The Midvale Co.
None	None	10,574,621	9,874,500	20,449,121	15,219,255	39.53	2.29	14.12	1947	
None	10,738,300	8,055,194	35,276,183	54,069,677	29,904,565	108.93	13.77	14.78	1948	Allegheny Ludlum Steel Corp.
None	None	8,055,194	31,683,177	39,738,371	20,846,259	80.06	12.09	14.60	1947	
None	None	1,978,831	10,573,589	12,552,420	5,031,410	28.46	6.12 ¹²	6.92 ¹²	1948	
None	None	2,001,381	8,250,754	10,252,135	3,738,561	26.49	4.36	5.31	1947	
None	None	7,018,866	8,074,734	15,093,600	7,373,605	41.47	4.46	5.11	1948	
None	None	7,018,970	6,890,353	13,909,323	6,309,514	38.21	3.56	4.10	1947	
None	None	1,929,390	4,151,847	6,081,237	2,344,006	17.89	7.34	10.08	1948	
731,654	None	1,670,250	2,067,287	4,469,191	2,634,289	17.53	3.54	4.48	1947	
,309,673	None	4,125,000	4,193,831	10,756,331	5,005,390	32.99	5.42	6.36	1948	
,437,500	None	4,125,000	3,147,843	9,772,843	4,769,058	29.98	4.38	4.96	1947	
		4,089,125 4,089,125	1,450,393 587,741	5,539,518 4,676,866	2,146,694 1,567,854	17.26 14.57	5.79 6.02	6.46 7.40	1948 1947	
,000,000	None	2,604,167	10,769,050	15,373,217	5,237,809	50.84	13.78	13.94	1948	
,500,000	None	2,604,167	8,476,499	13,580,666	3,848,340	44.91	15.45	16.19	1947	
,471,804 ,738,550 +6.6	\$644,739,167 634,208,390 +1.7	\$1,774,891,700 1,535,323,033 +15.6	\$1,964,602,127 1,586,040,034 +23.9	\$5,026,661,545 4,360,286,787 +15.3	\$1,753,275,960 1,664,119,815 +5.4	\$58.08 51.45 +12.9	\$6.04 4.66 +29.6	\$6.48 5.12 +26.6	1948 1947	

Before deducting \$1,200,000 inventory and contingency

reserve.
Estimated, based on national operating rate so as to include companies listed above that do not publish production figures.

National rate for entire industry by American Iron & Steel Institute.

^{16.} At close of year. Italics indicate loss.

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DATA COVER OPERATIONS OF 26 COMPANIES REPRESENTING 91 PCT OF THE INGOT CAPACITY OF THE UNITED STATES AS OF JAN. 1, 1948

S	Provision for Federal Income Taxes		Working Capital	Capital per Ton of Ingot Ca- pacity	Income per Ton of Ingot Ca- pacity	Income per Ton of Ingot Produc- tion	Year	COMPANY
	\$109,000,000 91,000,000	\$12 12	\$469,505,437 548,648,098	\$60.85 50.90	\$4.14 4.07	\$4.42 4.44	1948 1947	U. S. Steel Corp.
	57,225,000 31,000,000	9 5	280,644,542 290,114,970	55.58 53.43	6.55 3.96	6.74 3.99	1948 1947	Bethlehem Steel Corp.
	34,000,000 23,250,000	4 3	148,633,092 124,517,061	46.60 43.36	5.40 3.60	5.58 3.88	1948 1947	Republic Steel Corp.
	18,950,000 11,482,000	3	107,387,078 88,836,383	64.62 60.83	6.48 4.06	6.74 4.25	1948 1947	Jones & Laughlin Steel Corp.
	33,300,000 19,270,000	4 2	98,162,348 73,371,176	59.73 61.50	9.91 6.88		1948 1947	National Steel Corp.
Pittsbi	14 625 000	3 2	149,085,855 119,354,087	58.61 53.28	8.92 6.57	9.00 6.64	1948 1947	Youngs town Sheet & Tube Co.
compar pct of	20,072,015	3 2	112,533,281 76,821,865	71.76 58.36	8.99 7.43	9.61 8.12	1948 1947	Armco Steel Corp.
capacit they w	23,221,000 18,485,000	3,54	121,275,990 104,903,912	68.03 56.47	11.35 8.79	10.93 9.06	1948 1947	Inland Steel Co.
makers able as "good"			24,774,495 18,599,902	29.02 20.33	5.52 4.02	7.11 5.50	1948 1947	Sharon Steel Corp.
take so		4	19,094,581 17,217,825	45.48 41.64	4.20 3.51	4.43 3.72	1948 1947	Colorado Fuel & Iron Corp.
Sales the 26		1	56,388,428 52,778,524	110.40 102.64	10.68 8.27	11.55 9.06	1948 1947	Wheeling Steel Corp.
here am 579,001	1,084,466		32,541,895 32,472,422	71.80	1.65		1948 1947	Crucible Steel Co. of America
979,881, than 19 revenue.	4,350,000		23,550,867 20,750,417	48.31	3.75	3.99	1948 1947	Pittsburgh Steel Co.
was \$52 industry	2,600,000		9,361,587 8,882,540	29.24 24.87	6.84 5.98	6.96 5.91	1948 1947	Portsmouth Steel Corp.
mately about \$5	1,675,000 1,746,200		8,939,351 7,324,843	28.63 25.50	3.86 4.32	3.72 4.23	1948 1947	Lukens Steel Co.
Since 4.6 pct, came from	2,370,000 880,000		6,904,782 5,314,940	31.61 36.98	5.27 3.88	6.62 4.41	1948 1947	Granite City Steel Co.
tions and should	3,414,500		8,569,442 9,170,016	24.92 30.80	9.00 ¹³ 3.22		1948 1947	Copperweld Steel Co.
many ste sidiaries	2,842,000 1,238,000		6,444,468 6,107,704	46.80 31.29	7.48 3.56	7.76 4.35	1948 1947	Alan Wood Steel Co.
though the	None		12,434,962 15,219,255	34.28 39.53	3.22 2.29	25.64 14.12	1948 1947	The Midvale Co.
The fi	4,601,358		29,904,565 20,846,259	108.93 80.06	13.77 12.09	14.78 14.60	1948 1947	Allegheny Ludlum Steel Corp
ot obvio	2,048,176		5,031,410 3,738,561	28.46 26.49	6.12 ¹² 4.36	6.92 ¹² 5.31	1948 1947	Barium Steel Corp.
rom 92.9	0,0,00		7,373,605 6,309,514	41.47 38.21	4.46 3.56	5.11 4.10	1948 1947	Continental Steel Corp.
naking he 26 st ial story	1,500,000		2,344,006 2,634,289	17.89 17.53	7.34 3.54	10.08 4.48	1948 1947	Rotary Electric Steel Co.
ble to pret tons, o	1,165,000		5,005,390 4,769,058	32.99 29.98	5.42 4.38	6.36 4.96	1948 1947	Laclede Steel Co.
nan they f finished	1,180,000 1,319,000		2,146,694 1,567,854	17.26 14.57	5.79 6.02	6.46 7.40	1948 1947	Northwestern Steel & Wire Co
ated gai Despite	2,060,598 2,458,436		5,237,809 3,848,340	50.84 44.91	13.78 15.45	13.94 16.19	1948 1947	Keystone Steel & Wire Co.
et incomposted covered to only 7.1	\$374,392,768	\$5.	\$1,753,275,960 1,664,119,815	\$58.08 51.45	\$6.04 4.66	\$6.48 5.12	1948 1947	GRAND TOTAL

146-THE IR

contingency

nded Oct. 30, 194 so as to in-lish produc-

National rate for entire industry by American Iron & Steel Institute. 15.

16.

At close of year. Italics indicate loss.

THE IRON AGE, April 7, 1949

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exas Steel Market

(CONTINUED FROM PAGE 137)

would now be in an over extended position from which it might be difficult to extricate themselves. Large distributers of oil country goods told THE IRON AGE that other supplies are good, inventories are high and generally steel demand will drop in months to come.

The gas industry is still going strong. If it weren't for this the pipe demand might really have gone to pot. When a hole is sunk, the driller never knows for sure whether he will strike gas or oil. As long as gas demand holds the drilling schedules appear to be relatively safe.

Steel fabricators last year were desperate for all types of shapes, plates, concrete bars, etc. They even bought Belgian steel. Most such orders were placed last summer at prices running as high as 9¢ per lb. Port of Houston officials told THE IRON AGE that 23,000 net tons of Belgian steel was brought into Houston last year. Of this tonnage 14,589 net tons were small shapes and plates. The balance was pipe, bars and H-R hand mill sheets.

By November and December of last year, buyers of this foreign steel found they didn't really need all the high priced tonnage. The domestic gray market had weakened and supplies were looking up. Starting in January steel brokers who had bought Belgian steel for future deliveries started shading their prices. Today this steel, some of it on the docks and some of it in transit or contracted for, is being offered at 5¢ or 6¢ a lb. Actually, there are brokers in Houston who sell this steel for what they can get in order to get rid of it. Thus this phase of steel supply into Texas is dead. Users claim this steel was of fair quality for acid bessemer grades. The plates and shapes worked well, but the tolerances on sheets were not as consistent as the home-made product.

Construction of large business buildings this year will be about 10 pct less, competent steel fabricators estimate. Home construction will continue to boom and highway building is expected to about equal last year. The big programs in new refineries, chemical plants, etc., are not as large as in 1948. Nobody in Texas thinks they



HOUSTON'S \$50 million ship canal forms the vital 50-mile link to the sea for much of the chemical trinity which is Texas'. Along this waterway is located most of the "Who's Who" in the chemical industry.

will experience a bust in 1949, but none expect this year to equal '47 or '48.

Officials of Texas Power and Light Co. told THE IRON AGE their expansion program remains unchanged. The rural electrification program is still far from complete. Although the huge population increases in centers like Houston, Dallas, etc., have slackened, a steady consistent growth remains. Electric power companies are encouraged over the delivery of vital equipment which for so long has been hard to get. On the average deliveries on power station equipment and other generating machinery has improved by 3 to 4 months since last fall. These executives say they expect even better deliveries for the balance of this year. Aluminum bus bar remains tight.

Gas companies are still complaining about delivery of large diameter pipe for the pipe lines already authorized by FPC. They admit the mills are doing better, but still delivery isn't good. For the most part these companies have stopped conversion deals and appear content to wait for the delivery of regular mill priced pipe.

All told, authorized gas and oil lines still to be built will require 2.2 million net tons of line pipe. This tonnage plus that necessary to com-

plete planned lines totals almost 8 million tons, which based on last year's production will take about 4 years to satisfy. (See THE IRON AGE, Mar. 17, p. 139.)

The biggest shortage in pipe is in sizes over 24 in. in diameter. No matter what happens to general steel demand in Texas it is felt that this long range need of line pipe will keep the total steel tonnage consumed in the state somewhere near last year's shipments. This will only be true as long as all the planned lines are eventually authorized. Authorization itself does not guarantee that the lines will be built, but it's the closest to a guarantee as can be found anywhere in the industry.

Next to line pipe, carbon plates are the tightest steel product in the Texas markets. Wide flange beams are still tight, but market men in the state expect beams to be free long before plates ease. The plate shortage has eased to the place that premium prices are out. However, one of the large plate markets in the state, and for the general Southwest, is plates needed for LPG tanks.

This industry is in the throes of growing up and LPG tank makers frankly admitted to THE IRON AGE that the market picture on this item is foggy. The American Gas

Industrial Briefs

- SOUTHERN HOSPITALITY—Southern States Iron Roofing Co., Savannah, Ga., manufacturers of metal roofing, has opened a new branch warehouse in New Orleans. The opening was celebrated with a 2-day housewarming party. In addition to its domestic activities, the new branch will be the center of Southern States' export operations.
- HARMONIZING Delta Mfg. Div. of Rockwell Mfg. Co., Milwaukee, is sponsoring a manufacturer-dealer-customer relations program on the West Coast is a series of six "welding clinics." They will be in San Diego, Mar. 25-26; Los Angeles, Mar. 29-30; San Francisco, Mar. 31-Apr. 1; Portland, Apr. 5; Seattle, Apr. 7-8; and Vancouver, B. C., Apr. 9.
- ROLLING AGAIN Production
 of Ford motor coaches, interrupted last November because
 of a strike at the plant of the
 Wayne Works, Inc., Richmond,
 Ind., builder of the Ford coach
 bodies, is being resumed, according to a recent announcement. It was said that the shutdown period had been used to
 incorporate design and engineering advancements.
- STAFF CHANGES—The National Foundry Assn. has named John Paul Ahern, formerly on the executive staff of the Manufacturers Assn. of Connecticut, as executive director. Edward E. Fries, who has been on the administrative staff of the association, has been promoted to the position of field secretary.
- NEW IRON—The Cooper-Bessemer Corp., Mt. Vernon, Ohio, heavy duty engine builders, has revealed that since the first of this year they have been licensed to produce magnesium-treated cast iron—the first license granted by the International Nickel Co., developers of this high strength, ductile iron.

- FOUNDRY AGENT Whiting Corp., Harvey, Ill., has announced the appointment of the Minnesota Supply Co., 706 Portland Ave., Minneapolis, as agents for their varied line of foundry equipment.
- READY TO SERVE—Announcement has been made of the establishment of the Tuschman Steel Co., 5000 Detroit Ave., Junction Dixie & Telegraph Roads, Toledo, offering a complete scrap iron and steel service.
- BUSINESS FOR SALE—Sale of the Defiance Machine Works, Defiance, Ohio, as a going concern has been authorized by its owners. The company, which is engaged in a general purpose machine tool business, owns its own building, its own equipment and machinery and maintains an industrial research laboratory.
- OKAYS PERMIT—Negotiations have been completed between Hercules Motors Corp., Canton, Ohio, and Hispano Suiza of France, which licenses the latter company to build two series of Hercules high speed, heavy duty Diesel engines for application in commercial vehicles and industrial machinery in France.
- Takes Over—The purchase of the Machinery Div. of the Taylor Mfg. Co., Milwaukee, was announced by A. C. Flamme, formerly sales manager of the company, and C. E. Chavez, consulting engineer. The new company will be known as the Taylor Dynamometer & Machine Co. with offices at 5108 W. Center St., Milwaukee. They will manufacture drilling machines and hydraulic dynamometers.
- TOOL DIRECTOR Roger F. Waindle, general manager of the Industrial Products Div. of the Elgin Watch Co., has been elected to the board of directors of the American Society of Tool Engineers.

Assn. has estimated that today there are $4\frac{1}{2}$ million customers served by this type of facility. At the end of 1948, 320,000 customers were receiving LPG direct from utility mains. Dealers' storage tanks have caught up. What the potential market is in smaller tanks for home or on the site use, remains a question.

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Last year when propane and butane supplies were temporarily cut off, a lot of consumers lost their enthusiasm for LPG systems. This particular segment of the gas industry is not organized and developed to the extent that a continuous minimum supply is guaranteed each day of the year. There are very large oil, gas, steel, and tank companies in the business, but until the consumer is given better assurance of supply the LPG industry will not be on solid ground.

After the war every welding shop that could secure plates started making tanks. Some for butane, others for propane. Today this market is in a slump, partly because of a mild winter, partly due to temporary over-production, but mostly because a dependable long range LPG policy has not been established.

Total Employment Again Drops in Massachusetts

Boston

• • • Total employment in Massachusetts in February was 19,100 less than in the previous month and 54,000 less than a year ago, according to figures compiled jointly by the U.S. Bureau of Labor Statistics and the State Department of Labor and Industries. Manufacturing employment dropped 7500 and nonmanufacturing employment fell 11,600. This left factory employment 56,-800 less than in February a year ago, but nonmanufacturing employment was still 2800 greater than in 1948.

Extends Union Contract

Jamestown, N. Y.

• • • • Members of Local 3411, United Steel Workers, approved extension of their contract with the Jamestown Malleable Iron Corp. for 90 days. Negotiations for a new agreement are scheduled to be resumed about June 1.

Nodular Graphite Grav Iron Developments **Progressing Rapidly**

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· · Development of the new nodular graphite gray iron is still in the experiment stage and is not yet available in commercial quantities, according to Gray Iron Founders' Society, Inc.

In a prepared statement, GIFS pointed out that the new iron is undergoing the transition from a laboratory product to a product which can be produced regularly in commercial foundries, but it will probably be a year or longer before purchasing agents can expect any large number of producers to be in position to accept specifications for this material.

Many gray iron foundries are working on the problem of making nodular graphite gray iron a commercial material.

Gray Iron Founders' Society said that this new type gray iron, while providing some mechanical properties in the order of two to four times that of the traditional product, does not provide some of the important engineering characteristics of gray iron containing flake graphite.

"Vibration resistance (damping capacity) is lower; the self-lubricating friction properties are not as good and the material is lower in castability (fluidity in the mol-Thus, there will be ten state). thousands of industrial applications where the older type gray irons will be found better than the

"What nodular gray iron really does is to extend the range of mechanical properties available in this material. With tensile properties as high as 100,000 psi and elongations as high as 20 pct, it will be seen that gray iron will eventually cross over into the realms now exclusively occupied by carbon and low alloy cast steels and malleable irons," the GIFS statement pointed out.

"Some of the process mechanisms involve a high degree of accident hazard, particularly the one which employs magnesium as the nodulizing agent*. Highly explosive when brought into contact with molten iron, magnesium is frequently introduced into the ladle in the form of alloys containing some 80 pct of nickel or copper. Foundries interested in experimenting in this fascinating new field of metallurgy should study the available literature exhaustively before doing any development work. The safety hazards are very real."

*Regarding the accident hazard, an official International Nickel Co. spokes-man said: "We have run hundreds of heats using magnesium and have en-countered no undue hazards."

Malleable Founders Group To Study Nodular Iron

Cleveland

· · · An expanded and continuing research program, including a special study in the field of nodular graphite iron to determine the most effective way in which the malleable iron industry's facilities and experience can be employed in the production of the new iron, was announced here this week by C. L. Carter, president, Malleable Founders' Society.

According to Mr. Carter's announcement, the research program will also include a study of methods aimed at further improvement of manufacturing methods and expanded markets.

The society's research committee chairman, C. A. Gutenkunst. Jr., has completed arrangements for conducting the work at the Southern Research Institute, Birmingham. L. J. Wise, Chicago: C. F. Lauenstein, Indianapolis, and W. A. Kennedy, Providence, comprise the metallurgical advisory group which with James H. Lansing, technical and research director of the Malleable Founders' Society, will cooperate in guiding the program, Mr. Carter's announcement stated.

"For present day uses of malleaable iron castings, standard malleable iron will continue to provide an economical and tough material which may be easily machined at high production speeds.

"By utilizing its facilities and long experience in closely controlled production of malleable iron castings, the Malleable industry, through its research program, is placing itself in the position to intelligently supplement its standard malleable production with the production of malleableized nodular graphite iron castings, when and if this type of casting is proved to be economically and commercially feasible."

Coming Events

- Apr. 8- 9 Lead Industries Assn., annual meeting, Chicago. Apr. 11-12 American Machine Tool Distributors' Assn., spring meeting, Savannah, Ga.
- Apr. 11-12 American Zinc Institute, annual meeting, St. Louis.
- Apr. 11-14
- Apr. 11-15 Apr. 14 Apr. 18-20
- Apr. 18-20
- American Zinc Institute, annual meeting, St. Louis.

 National Assn., of Corrosion Engineers, annual conference and exhibition, Cincinnati.

 Western Metal Congress and Exposition, Los Angeles.

 National Castings Council, annual meeting, Cleveland.

 Midwest Power Conference, Chicago.

 American Institute of Mining and Metallurgical Engineers, annual conference of Openhearth Steel Committee, Chicago.

 Magnesium Assn., annual meeting, Chicago.

 American Institute of Mining & Metallurgical Engineers, New England regional meeting. Springfield, Mass. Apr. 19-20 Apr. 22-23
- New England regional meeting, Springfield, Mass. Apr. 25-26 American Supply & Machinery Manufacturers Assn., Triple Mill Supply convention, Cleveland.
- Assn. of Iron & Steel Engineers, annual conference, Balti-May 2-3 more.
- American Society of Mechanical Engineers, spring meeting, New London, Conn. May 2-4
- May 2- 5 American Foundrymen's Society, annual convention, St. Louis.
- Electrochemical Society, semiannual meeting, Philadelphia. American Society for Quality Control, annual convention, May 4-7 May 5- 6 Boston.
- National Welding Supply Assn., annual convention, Cincin-May 11-13

Construction Steel

- • Fabricated steel awards this week included the following:
- 2685 Tons, Indianapolis, Veterans Hospital to R. C. Mahon Co., Detroit.
 1800 Tons, Portland, Ore., Olympia-Coving steel towers, Bonneville Power Administration Inv. 4464, to Isaacson Iron Works, Seattle.
- 1350 Tons, Portland, Ore., steel towers for Grand Coulee Snohomish line, Bonneville Power Administration Inv. 4485, to Isaacson Iron Works, Seattle.
- 1200 Tons, Manhattan, Kans., field house, Kansas State University, to Johnston Iron Works, Kansas City, Mo.
- 770 Tons, Yellowstone Co., Mont., Bridge FI-53-9 to Pittsburgh Des Moines Steel Co., Des Moines, Ia.
- 700 Tons, Decatur, Ill., building for A. E. Staley Co. to Mississippi Valley Structural Steel Co., Chicago.
 470 Tons, Hinsdale, Ill., high school building to Gage Structural Steel Co., Chicago.
- 450 Tons, Grand Coulee, Wash., tier logs, etc., Grand Coulee Dam, Bureau of Reclamation, Denver, Spec. 2540, to Pacific Car & Foundry, Seattle.
- 400 Tons, Salt Lake City, new plant for Royal Crystal Salt Co. to Structural Steel & Forge Co., Salt Lake City. 385 Tons, Philadelphia, State Hospital, to Lehigh Structural Steel Co., Allentown,
- 370 Tons, Chicago, surface and administra-tion building for Chicago Transit Author-ity to J. T. Ryerson & Sons, Chicago.

- 310 Tons, Lake Andes, S. D., construction treatle through Western Contracting Corp., Sioux City, Ia., to Lakeside Bridge & Iron Co., Milwaukee. S. D., construction
- 300 Tons, Harleysville, Pa., Harleysville Mutual Insurance Co., to Bethlehem Fabricators, Inc., Bethlehem.
- 255 Tons, Denver, outlet pipe for Bonny Dam outlet works, St. Francis unit, Bureau of Reclamation, Denver, Spec. 2525, to Berkeley Steel Construction Co., Berkeley, Calif.
- 255 Tons, Elkhart, Ind., 2,000,000-gal. water reservoir to Graver Tank & Mfg. Co., Chicago.
- 225 Tons, Jackson Co., Ia., state highway Bridge S-1301-1 through Iowa Bridge Co., to Clinton Bridge Co., Clinton, Ia.
- 220 Tons, M spans for Santa Fe Railroad to American Bridge.
- 195 Tons, Homewood, Ala., football stadium for Jefferson Co., Board of Education, to Virginia Bridge Co., Birmingham.
- 120 Tons, Parlin, N. J., E. I. duPont de Nemours Co., to Bethlehem Fabricators, Inc., Bethlehem.
- 120 Tons, Scituate, Mass., elementary school through Vara Construction Inc., Boston, to West End Iron Works, Cambridge,
- 120 Tons, Chicago, miscellaneous construction at Douglas Airport, through Arcol Mid-west Co., Chicago, Bennett Industries, Teitone, Ill.
- Tons, Chicago, construction work at Douglas Airport, to General Bronze Co., 100 Tons.

Fabricated steel inquiries this week included the following:

- 16000 Tons, Philadelphia, superstructure for Penrose Ave. bridge, Pennsylvania Dept. of Highways, due Apr. 29.
- 5000 Tons, Philadelphia, Jackson St. pier, City of Philadelphia, due Apr. 18.
 2500 Tons, Kenova, W. Va., rebuild bridge No. 5129 for C. & O. Railroad.
- 2190 Tons, Ocean City, N. J., Seaside Heights bridge for State of New Jersey.
- 2000 Tons, Binghamton, N. Y., medical building No. 75 for State of New York.
 1000 Tons, Menands, N. Y., warehouse for International Harvester Co., due Apr. 12.
- 990 Tons, Oakland, Calif., separation struc-tures, Eastshore Freeway, California Div. of Highways, Sacramento, bids to Apr. 27.
- 575 Tons, Grand Junction, Colo., highway structures, State Highway 340, Denver State Highway Engineer, bids to Apr. 19. 185 Tons, Seymour, Conn., Wilbur Cross Parkway, reinforced concrete pavement and 2 steel plate girder bridges, one over Little River at Bank St., the other over Little River at Mill Pond. Bids due April 4. M. B. Pearce, New Haven, engineer.

• • Reinforcing bar awards this week included the following:

145 Tons, Hudson, Wis., interstate bridge across the Mississippi to Industrial Con-tracting Co., Minneapolis.

• • Reinforcing bar inquiries this week included the following:

- 600 Tons, Lexington, Mass., new high school. 315 Tons, Chicago, Augustana Hospital addition previously reported, has been abandoned.
- Tons, Oakland, Calif., pavement and separation structures, Eastshore Freeway, California Div. of Highways, Sacramento, bids to Apr. 27. 280 Tons.
- 170 Tens, Chicago, building for Illinois In-stitute of Technology, Sumner Sollitt Co., Chicago, low bidder.
- Chicago, low bidder.

 165 Tons, Auburn, Calif., highway construction and overhead structures near Auburn, California Div. of Highways, Sacramento, bids to Apr. 27.

 120 Tons, Grand Junction, Colo., highway structures, State Highway 340, Denver State Highway Engineer, bids to Apr. 19.

Transfers Plant Operations

Cleveland

• • • Chicago Pneumatic Tool Co., after more than 50 years of operations here, will transfer its major operations to a new \$5 million plant in Utica, N. Y., within the next few months.

Difficulty in finding additional factory space in Ohio was given as the reason for the transfer, which will affect about 1000 employees here.

Changes Casting Prices

Hamilton, Ohio

• • • Hamilton Foundry & Machine Co. is refiguring active jobs on a new basis and new castings prices will go into effect for casting shipments beginning Apr. 1, through June 30, according to an announcement by Peter E. Rentschler, president and treasurer of the company.

SOYEARS AGO

THE IRON AGE, April 6, 1899

- · "In the Schenectady plant of the General Electric Co. the building which has most recently been equipped is known among the employees as "Number Eighty-three." That means it was the 83rd building to be erected at Schenectady by this company."
- "The Pittsburgh Steel Foundry Co. were organized at Pittsburgh last week with a paid up capital of \$250,000, the members of the new concern being some large capitalists of Pittsburgh."
- "In some cases pure aluminum is not strong enough alone, and it is thought better to use an alloy containing about 6 pct of copper. This possesses a tensile strength of 14 tons psi, but this material is absolutely untrustworthy in sea water, owing to the rapid corrosive action set up between the two ingredients."

- · "The industrial world seem no longer to fear the competition of the Japanese, who aspire to be leaders of progress in the Far East, and whose workers are satisfied with wages that would mean starvation in America."
- "The Brown Hoisting and Conveying Machine Co. of Cleveland have commenced the erection of an ore unloading and storage plant of unusual size at the works of Nicopol-Mariopol Mining and Metallurgical Co. at Mariopol, Russia."
- · "Edward Brown of Philadelphia, has been a specialist for the last 30 years in the manufacture of pyrometers."
- · "The Ohio Tube Co. at Warren, Ohio, last week offered their employees an advance in wages of 10 pct which has been refused, the men demanded 15 pct."

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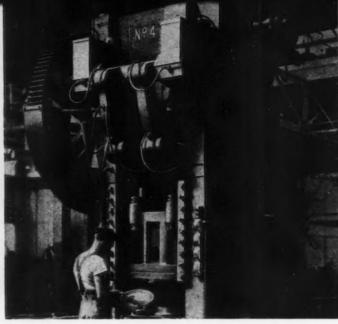
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Reservoirs for oil stoves are drawn in a Bliss No. 29 open back inclinable press equipped with Bliss die cushion. Material is 20 gauge steel .035. Main top of stove is drawn in a Bliss Double Crank Press—largest in the Florence Lewisburg plant.



One of several new Bliss toggle presses at the Florence plant forming a heater tank top. This No. 4 press is equipped with a die cushion in the bed which is used alternately for an additional forming operation or as a knockout, depending on the particular job.

PLANT GOES 100% BLISS

"Bliss Equipment gives us up to 50% more production"

-FLORENCE OPERATIONS HEAD

Here's how G. B. Colburn, vice president in charge of Florence Stove's Lewisburg operations, sums it up. "Experience at our Gardner plant, which was 60% Bliss-equipped, proved that Bliss presses gave us higher productivity per press with less 'downtime' for maintenance and repair. Our press runs are short, diechangeover is frequent with about 1100 dies in steady use, and the presses are worked hard. Bliss equipment gives us up to 50% more production. Many of our older Bliss presses are still being used for the operations for which they were originally bought—thanks to the assistance of Bliss engineers in selecting the right press for the job."

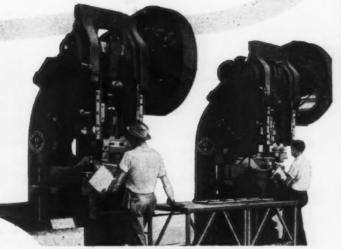
Add Florence Stove to the universal list of press users whose stamping lines are predominantly Bliss...who know that BLISS on a press is more than a name—it's a guarantee. You'll get the same dividends by putting your pressed metal problem up to Bliss.

See our catalog in SWEETS-or send for Bulletin 35B

E. W. BLISS COMPANY, DETROIT 2, MICHIGAN

Mechanical and Hydraulic Presses, Rolling Mills, Container Machinery

WORKS AT: Toledo, Cleveland, Salem, Ohio; Hastings, Mich.; Englewood, N. J.;
Derby, England; St. Ouen sur Seine, France.



Bliss Adjustable Bed Presses trim front and rear corners on lift top covers—also perform many forming operations on other stove parts. Screw adjustable table gives wide range of shutheight.



Three of several dozen Bliss inclinable presses shown blanking a manifold clip and leg plate for oil stove.



and Molybdenum

Tungsten and Molybdenum are two of the most important refractory metals in electrical, electronic and mechanical industries. Their high melting points, low vapor pressure, resistance to are erosion and great mechanical strength when combined with other metals intensify their values.

Both metals are used for electrical contacts, particularly in automotive ignition, vibrators, telegraph relays. They are components in the Fansteel Fastell® metals wherein their high resistance is combined with the electrical conductivity of silver or copper.

Heating elements in vacuum equipment – electric furnaces of temperatures 1600° C to 2000° C—on electrodes for inert gas welding and many other uses require Tungsten or Molybdenum.

Why not investigate Fansteel Metallurgy for better service and possibilities of economy in *your* problems? Fansteel Metallurgical Corporation, North Chicago, Illinois, U.S.A.

Tungsten and molybdenum ores are refined to pure metal powder by chemical operations. Powders are compacted to ingots in a powerful hydraulic press. (above). Ingots are sintered in hydrogen atmosphere furnaces by heavy electrical current. (lower picture). Intense heat causes the powder particles to fuse into a strong solid mass without melting.





Changes Reported For Tin Conservation; Tin Consumers to Benefit

Washington

• • • Numerous small changes in tin conservation orders M-43 and M-81, designed to alleviate minor hardships among some groups of tin users and to provide additional domestic markets for "mill accumulations" of tinplate, were announced recently by the Office of Domestic Commerce.

It was emphasized that the adjustments do not involve any additional allocations of tin. Changes in industrial uses of the scarce metal, ODC officials explained, have resulted in some small undistributed stocks of pig tin and of low-grade secondary tin-bearing alloys, which now may be used for purposes and in quantities not previously permitted. The amendment of Allocation Order M-43 serves to direct these limited lots to the most needed uses, on an equitable basis.

Major changes in M-43 provide for:

(1) Increase in tin content of automobile body solders, from 15 to 22 pct.

(2) Increases in tin content of collapsible tubes for dentifrices, from 3 to 7½ pct; and in tubes for shaving creams and paste form cosmetics, from ½ to 3 pct.

(3) Tinning of flat copper base wire and strip, where a solderable coating is required for electrical connections.

(4) Tinning of steel wire for a number of uses, where difficulties in use of substitute coatings warrant the change. Among industries benefiting are food packaging, electrical, printing and publishing, textile.

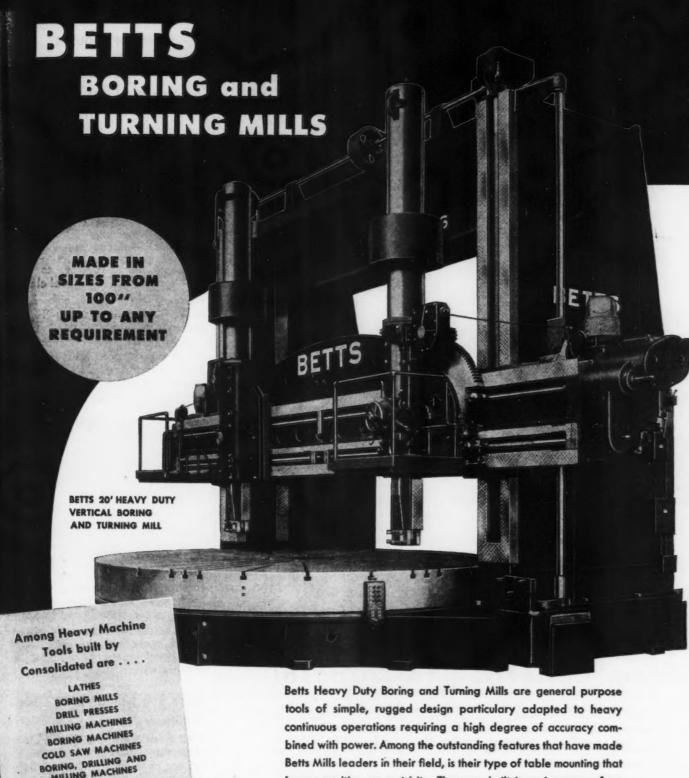
(5) Increase in tin content of lead base coating alloys, to provide a solderable coating, and wider use of bolster metal in all cutlery.

(6) Limited use, on authorization by the Dept. of Commerce, of pig tin produced from low grade secondaries, for production of stannous chloride for general chemical use.

(7) Removal of limit on tin content of copper base alloys for certain specified uses.

(R) Use of terne plate for smoke pipe and fittings, flue jacket liners for hot water heaters, flashings, and for repair and replacement of existing tin and terne plate roofing.

Another revision of Allocation Order M-43 and changes in M-81 permit can manufacturers and others to use any "idle and excess" hot-dipped tinplate and "menders" (defective electrolytic tinplate sheets which have been mended by hot-dipping in tin), for all purposes for which the orders authorize use of 0.50 lb or heavier tinplate. Idle and excess electrolytic tinplate of any weight of coating, and "menders" hot-dipped in terne metal, may be used wherever the orders allow for tinplate or terneplate.



bined with power. Among the outstanding features that have made Betts Mills leaders in their field, is their type of table mounting that insures positive concentricity. They are built in a size range from 100" swing up to any size to meet your requirements.

> Full information covering any size Betts Boring and Turning Mill in which you are interested will be furnished upon request.

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MACHINE TOOL CORPORATION



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AUTOMATIC ELIMINATION from Collection to Disposal

Operators of modern plants have long since learned the economy of ridding their shops of destructive dust and smoke fumes. Men who work in plants free of these health hazards feel better, work better, produce more. And the accident rate is lowered. In actual plant operation, the Schmieg CENTRI-MERGE method of dust and fume elimination has shown marked advantages over any other system. Dust and fumes are collected immediately they occur—shot back on a stream of air through ducts to the Collection Unit. In the washing chamber of this unit—a veritable tornado of seething, churning water-dust is washed and scrubbed from the air and flooded into the sludge tank below, permanently trapped under water. Fumes go out the exhaust. AUTOMATIC operation from start to finish.

If you are interested in learning why the CENTRI-MERGE method is so highly endorsed by plant owners and how its application can so greatly benefit your own operation, our engineers are prepared to give you some eye-opening information on dust and furne elimination—without obligation, of course.



Recommends Changes In Mineral Leasing Laws; Mineral Patent System

Washington

• • • If Congress sees fit to adopt recommendations of the Hoover Commission, it will be much easier in the future to stake out and prove a mining claim on government land.

The mineral patent system has not been changed since it was enacted in 1872 nor have there been changes in the mineral leasing laws since 1920. Patented claims have dropped from a rate of 2500 annually around the 1905 period to a current 100.

Specifically, the Commission urges that responsibility for mineral exploration, leasing and patenting of claims on public lands be turned over to the Geological Survey. Mineral claims would then be permitted to be staked on public reserved and unreserved lands with certain exceptions such as national parks.

Further, it is urged that the government recognize the validity of such claims without requiring that valuable minerals first be actually discovered. Also, "sufficient" time would be provided for discovery.

It is also proposed that present requirements regarding assessment work be modified or eliminated under stated conditions.

Such changes, it was stated, would encourage the exploration and development of mineral resources within the public domain.

Sees 51/2 Million Car Year

Des Moines, Iowa

• • • Ford Motor Co. experts estimate the potential domestic market for cars and trucks is a minimum of $5\frac{1}{2}$ million in 1949.

Ford's sales department estimates 3 million prospects for cars were "left over" from 1948. In addition, according to L. W. Smead, assistant general sales manager of the Ford Div., as of July 1, 1948, there were 7.5 million cars in operation 12 years old or older and 1.5 million trucks at least 12 years old.

Other factors tending to strengthen the market for new cars in Mr. Smead's opinion are:



a rate of 45 per hour, turning out 180 S-frame chairs per hour, or 720 hairpin legs per hour. Production of single legs is 1,440 per hour.

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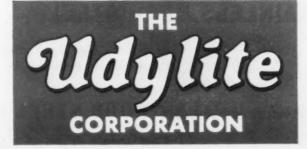
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Here is the answer to your quest for greater output, lower manufacturing costs, and better utilization of manpower. Write today for further information—describe your product and process -and we will promptly supply detailed recommendations, without cost or obligation to you. The Udylite Corporation, Detroit 11, Michigan.

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TESTED SOLUTIONS . TAILORED EQUIPMENT . AUTOMATIC CONTROL IN METAL FINISHING



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Other Products: AW Super Grip Abrasive Floor Plate AW Super-Diamond Floor Plate . Billets . Plates . Sheets (Alloy and special grades).

(1) there are 6 million more families in this country than there were in 1940; (2) 12 million more people are employed; (3) individual savings are three times greater than 1940.

Wildcatting Hits Detroit

• • • During the past month eight Detroit automobile plants have been hit by a flurry of wildcat strikes which have temporarily idled nearly 30,000 workers.

Hudson has been hit by eight stoppages. Next to Hudson, Chrysler, Briggs and Midland Steel, which makes frames here, have been most seriously affected.

Union spokesmen have charged that overstocked car producers have deliberately precipitated the strikes to avoid mass layoffs of workers. Management insists the strikes are entirely without provocation.

The introduction of new plant machinery appears to be a factor in the disputes. While management insists the new equipment is essential to the production of new models, labor charges the machines are only an excuse for getting a little more work out of each employee so that prices can be cut without reducing profits.

Most Detroit sources look for more of the same as long as the present uncertainty about the automobile market continues.

Canada's Steel Imports Up

Toronto

• • • During 1948 Canadian iron and steel imports, all classifications, totaled 990,263 net tons, of which 949,078 tons were primary forms of carbon steel; 35,292 tons of alloy steel and 4893 tons of stainless steel.

Of the total imports 896,870 tons of carbon steel, 34,374 tons of alloy steel and 4741 tons of stainless steel came from the United States, while 52,208 tons of carbon steel, 918 tons of alloy steel and 152 tons of stainless steel were imported from all other countries.

For the past year Canadian mills produced a total of 3,037,781 tons of carbon and 173,848 tons of alloy steel ingots and castings.

Kimpak* Float Packaging

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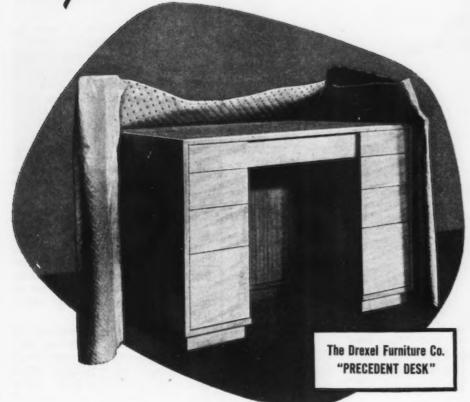
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Cuts shipping costs — reduces damage in transit!

KIMPAK* offers revolutionary advantages to help solve your packaging problems. It provides a more effective cushion against shock than most bulkier materials. What's more, the neat, compact rolls are so easy to apply, so light in weight, it's more economical to use.

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 KIMPAK guards all finished surfaces from damage by scratching, rubbing and pressmarking.



3. After KIMPAK is taped securely in place, the corrugate shipping container is fitted over the wrapped desk.



4. Completely packaged, the desk is now safely protected against the hazards encountered in handling, storage and shipping.

All photographs courtesy of Drexel Furniture Co., Drexel and Morganton, North Carolina.

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Have you a product problem—that may need help when selling gets a little spotty? If so, you'll want to know how pre-coated Thomas Strip can help you stimulate sagging sales—and profits—by (1) cutting your costs, and (2) improving your product.

Ready-to-fabricate Thomas Strip streamlines production and cuts costs all along the line. It combines the utility and beauty of nickel, copper, brass or zinc coatings with the economy of steel—gives your products the definite competitive advantages of favorable unit costs, smart appearance and lively consumer acceptance. In short, the snap and sparkle of gleaming Thomas metallic coatings often transform lack-lustre products into brisk best-sellers. Cost-cutting, product-improving details are listed below.

THE THOMAS STEEL COMPANY

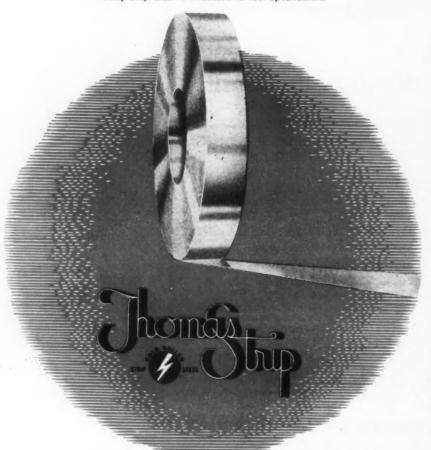
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Fabricates Readily-Adds Eye-Appeal

Sees Lower Quotations For Nonferrous Scrap

Chicago

Scrap dealers from all over the country gathered here at the Stevens Hotel March 21 through 23 for the 36th annual convention of the National Assn. of Waste Material Dealers. Although there were technical meetings scheduled primary interest concerned to-day's market.

The most popular discussions in the hotel lobbies and various rooms of those attending the convention were about the softness of the nonferrous metals. Consensus was that lead and aluminum scrap may decline even further. A lot of the dealers still cannot understand what keeps the primary prices of these metals up so high when scrap has fallen as much as 75 pct from last year's high.

Sidney Danziger, president of the National Assn. of Waste Material Dealers expects nonferrous metal scrap prices to level off at about 25 pct under last year's peak. Mr. Danziger and some of the other dealers present expect the market to climb back out of its present low before the year is over.

Another popular subject discussed by the dealers was government stockpiling. Many of the dealers expressed the opinion that this program of critical metals has been an important prop under prices in the metal market. The extent of future government purchase programs are in doubt, nobody is sure how the general stockpiling plan will affect metal markets for the balance of the year.

The association is pushing several programs which it is believed will benefit the industry. One is a better set of specifications for grading scrap metals. Details of such specifications are being worked out between the metal dealers and the mills that buy the scrap. Another program is that inducing young men, particularly war veterans, to start apprenticeship courses in the industry. The association has a very active committee pushing this program. This committee reported to the Metals Div.'s general meeting that they have high hopes for getting the government to include the jobs as



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Available in single and multiple widths, with pitches from 3/8" to 21/2". Morse Roller Chain represents the result of engineering skill applied to a practical knowledge of chain design.

You get low-cost, positive, efficient, flexible chain drives for your mechanical power transmission with Morse Roller Chain. For complete information, write Dept. 333, Morse Chain Company, Detroit 8, Mich.

> Morse Cut Tooth Sprockets, accurately machined for top performance, are recommended for use with Morse Roller Chain. There's no divided responsibility for chain drive performance when you get both chain and sprockets from Morse.



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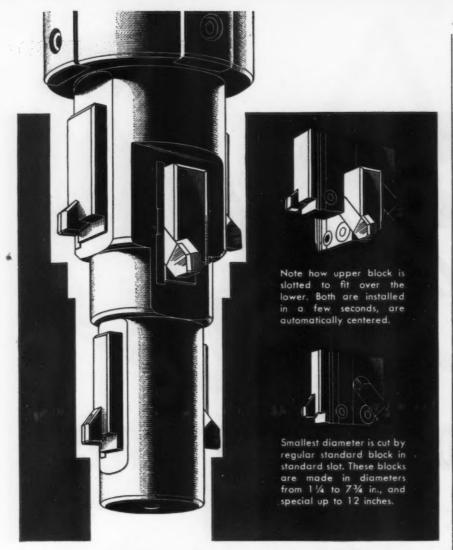




MORSE CHAIN COMPANY

DETROIT 8. MICHIGAN

THE IRON AGE, April 7, 1949-161



Gairing Boring Tools Boost Production

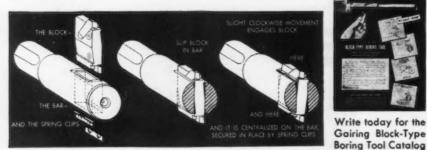
Quick-Change Blocks Save Man-Hours and Down-Time

Held in the boring bar without locating holes and screws, only Gairing Standard Boring Blocks can be used in such applications as shown above.

The operation consists of boring diameters of 2.693, 2.228, and 1.875 inches in a tractor drive housing, cutting cast iron at a surface speed of 200 F.P.M., 0.020° feed per revolution.

Here, as always, blocks are pre-set to size, perfectly self-centered; always positively locked, rigidly driven. They are used extensively for rough boring as well as for semi-finishing and reaming operations.

Let us show you how Gairing Boring Blocks may be applied to your problems.



THE GAIRING TOOL COMPANY, 21224 HOOVER ROAD, DETROIT 32, MICH.

classified and as skilled rather than unskilled. If they are successful in this it will mean that metal dealers will be able to take in war veterans for apprenticeship work in their yards, and as part of the general program the government will help sponsor and pay salaries of these men.

Reports Record Tonnage

Depew, N. Y.

• • • The Symington-Gould Corp. reported its local plant achieved the greatest production tonnage record last year since 1929. The record was made possible, the company said, "by modernization of facilities, improved methods and some diversification of products."

As part of its diversification program, the Depew plant is making steel ingots in addition to its principal line of railroad castings. The ingots are for automobile manufacturers, who have them custom rolled into sheets.

The company reported 1948 net profit of \$282,404, equal to 28¢ a share, after taxes and deduction of a nonrecurring loss in connection with the sale of its Rochester plant, which was closed in the spring of 1948. Net sales for 1948 totaled \$15,461,131. Earnings in 1947 were \$148,561, or 15¢ a share, and net sales were \$12,245,-659.

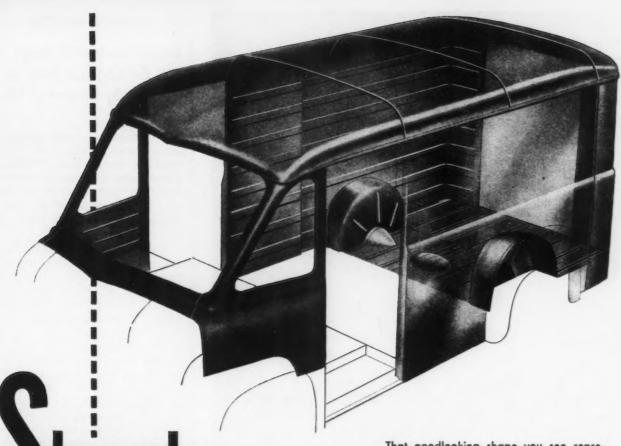
Salaries and wages declined to \$5,573,289 in 1948 from \$6,019,609 in the preceding year.

WAA Offers Forge Works

Cincinnati

•••• The Cincinnati Region, WAA, is offering for sale or lease the only remaining surplus operating forge works in the 4 state area which includes the major part of Ohio and Indiana, all of Kentucky and western Pennsylvania. This property is located at 3695 E. 78 St., Cleveland. Sealed bids will be accepted by the WAA Office of Real Property Disposal, 704 Race St., Cincinnati, until 3:00 p. m. (EST) Apr. 15, 1949.

Interested prospective buyers are urged to make an appointment for the inspection of this property at which time a WAA representative will be assigned to explain the merits of the property and the condition of sale or lease.



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That goodlooking shape you see represents a composite of heavy automotive stampings. "She's" a picture of the parts now being turned out on Brandt's precision mass production line for one of America's largest automotive manufacturers. A battery of huge presses, a plant equipped to meet exacting specifications and rigid delivery schedules at distant assembly lines, these plus skilled workmanship are serving industry at Brandt. Ample stockpiles, complete engineering, transportation and expanded production facilities combine to make Brandt a strategic "extra plant" when you need it. At Brandt, all inquiries are handled from receipt to quotation by the Engineering Department. We invite your inquiry.





One of the important time-saving characteristics of this Moore Rapid Lectromelt furnace is the unique four point roof suspension. The tilted position of the size OPT Lectromelt furnace shows this construction principle advantageously. This system makes the removal, replacement and alignment of the roof very easy and very quick. The roof ring is suspended from sturdy outrigger arms by means of especially designed screw operated clips under the ring's top angle and supported at four points. This type of construction also securely locks the roof and superstructure in place.

Moore Rapid Lectromelt Furnaces are available in capacities ranging from 250 pounds to 100 tons. For full details, write today for the Lectromelt catalog.

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Report on Hot-Rolling Of Titanium Powder By Bureau of Mines

Washington

• • • Successful compacting of loose metal powders into useful metallic forms, and preliminary experiments on titanium-nickel alloys, are described in two separate reports of investigations released by James Boyd, Director of the Bureau of Mines.

Titanium, which ranks fourth among metals suitable for engineering purposes, is active chemically and at high temperatures reacts readily with the atmosphere. This characteristic makes it extremely difficult to produce a pure metal by melting and casting as with other metals, according to the Bureau reports. However, the Bureau developed a process in which titanium powder can be heated to elevated temperatures while sealed in ductile, gastight containers. Hot-rolling the complete assembly produces a solid, nonporous metal for working into construction members, machinery parts, and many other materials.

In connection with the sheathworking of titanium powder, Bureau research was expanded to include certain other metal powders as well as alloys of titanium. As a result, the process was successfully applied to powders of chromium, tantalum, tungsten, molybdenum, beryllium, cobalt, iron, and nickel.

As a natural result of research on pure metallic titanium, Bureau metallurgists also are investigating the possibilities of titanium alloys for engineering purposes since pure metals in general show relatively large improvements in properties when alloyed with other metals. The titanium-nickel series is the first of several alloys to be tested in Bureau laboratories. The report on this research describes experiments on alloys containing up to 40 pct nickel.

Copies of either of the reports, R.I. 4463, "A Tentative Titanium-Nickel Diagram," or R.I. 4464, "Sheath Working of Metal Powders," may be obtained free by writing to the Bureau of Mines, Publications Distribution Section,

4800 Forbes St., Pittsburgh 13, Pa. The publication or publications requested should be identified by number and name.

Exit! Dirty Foundry Work

Birmingham

• • • "Labor-serving" devices are eliminating much of the "hard, hot, dirty work" associated with old-type foundries, Lester B. Knight, Chicago consulting engineer, told the Birmingham Chapter, American Foundrymen's Society.

Mr. Knight, president of Lester B. Knight & Associates, Inc., said use of these devices has resulted in greater unit production per manhour, thereby increasing the workman's take-home pay without substantially boosting the cost of his product.

In addition to the use of "laborserving" devices, modern foundries are making use of proper lighting and ventilation, the consulting engineer asserted.

Mr. Knight warned, however, that some foundries tend to "over mechanize," causing a decrease in flexibility and forcing costs up as volume of business drops.

Canadian Construction Up

Toronto

• • • Canadian construction contracts awarded for the first 2 months this year were 75 pct ahead of the like period last year. Total value of contracts awarded amounted to \$136,115,100 as compared with \$77,162,900 for the first 2 months of 1948. For February construction awards amounted to \$63,322,700 which is upwards of \$20 millon above those for February last year.

A-L Stabilizes at Buffalo

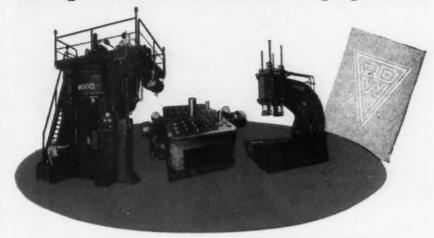
Buffalo

• • • Operations of the Allegheny Ludlum Steel Corp. plant in River Road have been stabilized at about 70 pct of normal for 1947 and 1948, a company spokesman said last week.

The plant, which makes alloy steel castings, laid off about 50 workers shortly before Feb. 1 and now has about 125 on the payroll, all of whom are working a full week.

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for Hydraulic Presses and Equipment



R. D. WOOD HYDRAULIC PRESSES AND MACHINERY FOR THE METAL WORKING INDUSTRY—Various sizes and capacities for flanging, bending, straightening, joggling, forming, molding, forging, cogging, upsetting, and similar operations.



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Write to R. D. Wood Company, Philadelphia 5, Pa., for catalog sheets or other information concerning hydraulic presses and equipment. Or contact R. D. Wood representatives in the Wood representatives in the following cities: Akron. O., Birmingham, Ala., Buffalo, N. Y., Camden, N. J., Chicago, Ill., Camden, N. J., Chicago, Ill., Camden, N. J., Fort Wayne, Ind., Erie, Pa., Fort Wayne, Ind., Newark, N. J., Pittsburgh, Pa., New York, N. Y., Rochester, N. Y., San Francisco, Cal., Syrause, N. Y., Toronto, Canada, Trenton, N. J.

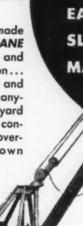
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No Mobile Crane made today can match KRANE KAR speed, safety, and economy of operation... picking up, carrying, and placing loads . . . anywhere, in plant or yard . . . uneven terrain, congested areas, low overhead, up and down ramps.



KRANE KAR handles loads at Sides as well as at Front.

MOVES LOADS
EASIER - FASTER SLASHES COST OF
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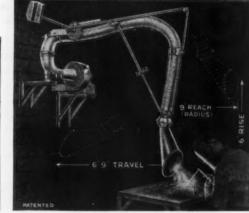
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THE ORIGINAL SWING-BOOM MOBILE CRANE WITH FRONT-WHEEL DRIVE AND REAR-WHEEL STEER 114, 214, 5, AND 10 TON TO CAPACITIES

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SILENT HOIST & CRANE CO., 851 63rd ST., BKLYN 20, N.



RUEMELIN Fume Collector Removes Welding Jumes at the Source ...

Why continue to let your employees inhale welding fumes? You can solve the problem quickly and efficiently by installing a Ruemelin Fume Collector. It produces a powerful suction that draws out noxious gases, smoke and heat at the source. Guards employee health, resulting in less welder fatigue, therefore, greater plant output. Clears shop air with minimum loss of building heat. Covers maximum welding area vertically, horizontally and by circle swing. Shipped assembled, easy to install. 9 ft. and 15 ft. sizes (radius of swing).

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Space Heaters Improve Paint Shop Operations

Pittsburgh

• • • Installation of four gasfired, high velocity warm air space heaters solved several problems involved in the spray painting of railroad cars during cold weather last winter at Greenville Steel Car Co., Greenville, Pa.

The paint shop is located in part of a large brick structure 735 ft long and 250 ft wide. It has a dirt floor and the roof, 18 ft high, is of wood and tar paper. The building never had been equipped with a heating system since it was erected about 30 years ago.

Boxcars, gondolas, hoppers and special type cars are fabricated in other buildings and remain outdoors until scheduled for painting. Frequently the metal surfaces of the cars are covered with frost, ice or snow when moved into the paint shop. In the past, this made the painting operation extremely difficult. When the outdoor temperature was below freezing, paint congealed in the spraying equipment. Special coldweather mixtures had to be used.

The four Dravo "Counterflo" direct - fired heaters, however, maintained an average of 45°F (at zero outdoors) in the painting department of the huge building. As a result, considerable time was saved in the painting operations because the delays previously encountered during cold weather were eliminated. Standard paint mixtures were used even when the outdoor temperature dropped to -25°F.

Appoints New Chairmen

New Haven, Conn.

••• Joseph A. Schiavone, of Michael Schiavone & Sons, Inc., here, has been appointed chairman of the Eastern Div. of the Yard Dealers committee of the Institute of Scrap Iron & Steel Inc. by Edward L. Solomon of Pittsburgh, who is president.

Joseph Cohen, General Scrap Iron, Inc., Providence, has been named cochairman of the committee.

Henry Koplin, Macon Iron & Paper Stock Co., Macon, Ga., has been appointed chairman of the Southern Div. of the Yard Dealers committee.

Receives Safety Award From NSC for Record Number of Manhours

Cleveland

• • • • American Works, American Steel & Wire Co., which has rolled up a record of more than 3 million man-hr worked without a lost-time accident, was honored by the National Safety Council at a ceremony Mar. 30, it was announced by H. B. Jordan, vice-president in charge of operations.

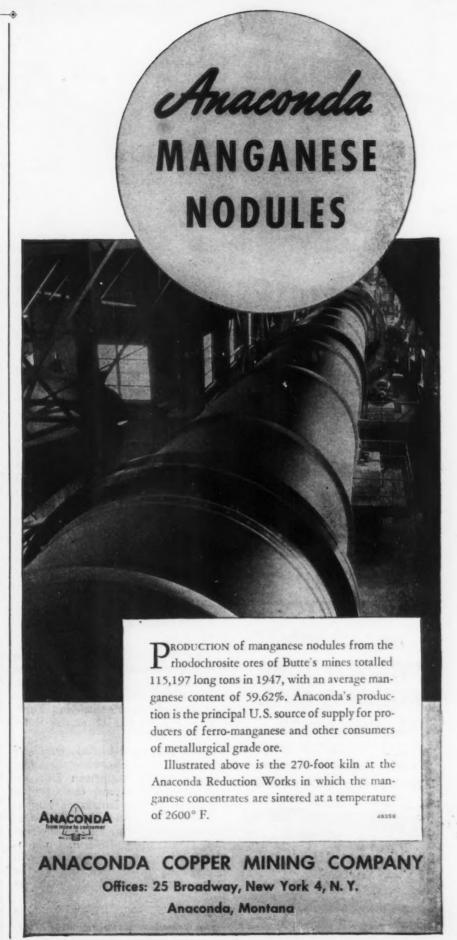
The council's Distinguished Service Award was presented by Judge Lee E. Skeel, president, Greater Cleveland Safety Council, representing the National Council, to H. W. Hartman, superintendent of the plant.

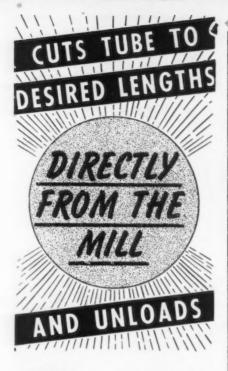
Special recognition was given to the six members of the joint labormanagement safety committee at the plant, of which R. D. Cross, supervisor of safety and works protection, is chairman. Other members are F. G. Mog, master mechanic, F. A. Kearns, superintendent of fine wire, and three labor representatives, all officers of Local 1519 United Steelworkers-CIO. They are Harry Marsh, treasurer; Howard Harbaugh, Jr., vice-president and grievance committeeman, and James Collingwood, recording secretary.

Others participating in the ceremony were A. J. Hoyt, Cleveland district manager of operations, and E. O. Kumler, company assistant director of industrial relations, in charge of safety.

"The Safety Council award is being made to American Works on the basis of the period from June 23, 1947, to Nov. 5, 1948, during which the manhours worked without accident reached a total of 2,622,580," Mr. Jordan said. "We are highly gratified that this record has been maintained to the present date, which brings the 'no accident' period up to 634 days, with 3,164,750 man-hr.

"This record has been made possible by the constant effort and vigilance of every one of the 955 men and women employed at American Works. It reflects the kind of achievement that is possible when safety is made the number one consideration. Records show that our workers are safer at American Works and in our









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other plants than in their own homes or in their automobiles."

An intensive safety program has been carried on throughout the company for years under Mr. Kumler's direction, Mr. Jordan pointed out.

"Our Joliet, Ill., Works has been nominated for a Safety Council award for its 134-day record of 1,898,000 man-hr without accident. Our Blast Furnace Div. at Duluth, Minn., recently completed a full year—more than 321,000 man-hr—without a lost-time accident. At our Central Furnaces plant in Cleveland, a blast furnace was blown out, partially relined, and placed back in service without a single accident," Mr. Jordan said.

"Our New Haven, Conn., plant has won a safety award for the least accidents in that area among plants working over 170,000 manhr a month. Our plant in Trenton, N. J., won first place for 1947 in the annual Inter-plant Safety Contest sponsored by the New Jersey Dept. of Labor. Our Donora, Pa., plant has just received six certificates of honor from the State Dept. of Labor and Industry for perfect safety records in six units of the plant. And at the Cuyahoga Works, our largest plant in Cleveland, steady improvement has been made during the last three years in both accident severity and frequency, and the plant has just established a mark of approximately 1,500,000 man-hr without accident."

Galvanizers Plan Meeting

St. Louis

• • • Technical and operating men of the galvanizing division of the steel industry will attend a meeting of The Galvanizers Committee to be held on Monday and Tuesday, Apr. 11 and 12, at the Hotel Statler, here.

On Monday morning, members of the Committee, which is sponsored by the American Zinc Institute, will attend the opening session of the Institute's annual meeting scheduled for that day, when subjects of mutual interest are listed for discussion. On Monday afternoon, the Committee will make an inspection tour of the Granite City Steel Co. plant at Granite City, Ill.

Separate sessions will be held on Tuesday morning and after-

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creases tool and die life through proper maintenance. Hydro-Finish is the new versatile impact blasting process that uses a fine mesh abrasive suspended in water and holds tolerances to .0001 inches.

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In the Production Line, Hydro-Finish eliminates many tedious finishing operations. It reduces cost and time involved in buffing. It improves fatigue life of the metal parts it finishes. It cuts many manufacturing costs.

It can be used for deburring, surface finishing and lubrication control, removing heat treat scale and discoloration, preparing surfaces for plating or coating, removing directional grinding lines, finishing threaded section for better workability and fit, improving manufacturing, maintenance and life of tools and dies, general maintenance cleaning.

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for every job

noon. At the open session on Tuesday morning, featured topics will be "The Future Market for Zinc-Coated Products" by Robert Meyer, of Carnegie-Illinois Steel Corp.; "Continuous Coating Units" by H. W. Lynn, of Wean Engineering Co.; and "Electrolytic Pickling for Galvanizing and Terne Lines" by E. A. Matteson, of Aetna-Standard Engineering Co. The Tuesday afternoon session will be for committee members

The Chairman of The Galvanizers Committee is F. F. Aloi, Bethlehem Steel Co. Responsible for the program at this, the Twenty-Second meeting of The Galvanizers Committee, are F. M. Morrow, Armco Steel Corp.; H. W. Bradley, Inland Steel Co.; J. A. Eckel, Carnegie-Illinois Steel Corp.; L. C. Flickinger, Youngstown Sheet & Tube Co.; F. G. White, Granite City Steel Co.; and G. A. Stein, Wheeling Steel Corp.

Will Hold 3-Day Forum

New York

• • • Engineers responsible for the design, construction, and operation of air transports and other aircraft will assemble here Apr. 11 to 14 for the SAE National Aeronautic and Air Transport Meeting, and Aircraft Engineering Display, in Hotel New Yorker. A feature of the meeting will be the Apr. 12 three-session all-day forum on "Getting the Best Out of Our New Transports," with airline engineers functioning as official hecklers to focus attention upon practical operating problems.

Formal sessions will end Apr. 13 at a dinner to be addressed by Gen. Joseph T. McNarney, USAF, Commanding Gen., Air Materiel Command, Wright Field, Dayton, who will talk on "Air Force Activities in Rockets. Jet Propulsion, and Supersonic Flight." The toastmaster will be Ralph S. Damon, president, Trans World Airline, New York. The address will be by S. W. Sparrow, SAE president, and of The Studebaker Corp., South Bend, Ind.

On Apr. 14 the engineers will visit the plants of Wright Aeronautical Corp., at Wood-Ridge, N. J., and of the Propeller Div., Curtiss-Wright Corp., at Caldwell, N. J.

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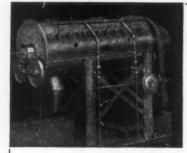
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WORK HEAT TREATED in these furnaces ranges from small pins and bearing parts up to heavy forgings for universal joints, which are normalized in the larger rotaries. These furnaces also find application in the process industries for calcining carbonates and nitrates, burning garnet grain, and similar processes.

UNIFORM HEATING is assured by the gentle mixing of the work as it passes through the rotating retort. The speed of rotation is controlled by a stepless variable transmission, permitting quick and exact adjustment of the time-temperature cycle.

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at all times. Only the work enters and leaves the furnace. **ECONOMICAL OPERATION** is secured by the thick lining of insulating refractory, backed by block insulation. Firing by means of many small burners keeps fuel efficiency high, heat losses low.



AMERICAN GAS FURNACE CO.

Reports Decreased Net And Slackened Demand

Cleveland

• • • Ferry Cap & Set Screw Co. reports 1948 net profit was \$456,-281, or \$2.92 a share compared with \$514,990 or \$3.30 a share the previous year. The company paid \$1.50 a share in 1948 and \$1.85 in 1947.

Production, according to president Harold D. North, exceeded that of 1947 but adjustments in selling prices did not fully absorb further cost increases.

Mr. North in his letter to shareholders states that postwar demand has slackened and backlog of orders at the end of 1948 was significantly lower than a year ago. He states, however, "Your management is hopeful that, barring general curtailment in production schedules, recent years' volume will be substantially maintained in 1949."

Total current assets of Ferry Cap & Screw Co. are listed as \$1,517,172 and earned surplus at end of 1948 was \$936,793.

Awards Given by Dravo

Pittsburgh

• • • • Awards totaling \$500 have been given to 11 Dravo Corp. employees for the best papers submitted in the company's 10th annual technical papers competition.

Top prize of \$150 was won by Orval Auhl, general superintendent of the contracting division, for an article on the construction of Bluestone Dam at Hinton, W. Va., which was completed last December by Dravo. Mr. Auhl's paper was presented before the Pittsburgh chapter, American Society of Civil Engineers and later was published in the magazine, "Civil Engineering."

R. D. Darrah, air-conditioning engineer in the machinery division, took second prize of \$100 for a paper on the air-conditioning of crane cabs in steel mills and foundries. The paper was presented before the annual convention of the Assn. of Iron & Steel Engineers and was later published in the magazine "Iron & Steel Engineer."

For their paper on welded fabrication of shipping containers, G. J. Green and D. H. Marlin of Dravo's

weld engineering department, were awarded third prize of \$50. This paper was presented at the annual convention of the American Welding Society and later published in the magazine, "Welding Journal." The same two men also received an honorable mention award for another paper on welding.

Other honorable mention awards of \$25 each went to: W. L. Price, marine repair department, for a paper on modernizing a sand and gravel dredge for the Warner Co., Philadelphia; G. E. Marley, power department, for a paper on expanding the power output at Weirton Steel Co.; G. O. Griffin, Dravo safety director, for a paper on the responsibility of management, supervision and labor for accident prevention in the construction industry; A. J. Dawson, chief engineer, marine department, for a paper on diesel engines in river traffic; C. A. Hill, controller, for a paper on office expenses; J. T. Connell, marine repair department, for a paper on repowering the towboat, New Orleans; and Erle M. Hays, electrical engineer, for a paper on safety codes for material handling machinery.

New Chairmen Appointed

Pittsburgh

• • • Charles R. Ritter, traffic manager of Luria Bros. & Co., Philadelphia, has been reappointed chairman of the transportation committee of the Institute of Scrap Iron & Steel Inc. by Edward L. Solomon, of Pittsburgh, who is president.

Stanley M. Carpenter, traffic manager of Luria Steel & Trading Corp., New York, has been named vice chairman of the committee.

Zero Month Seen for Autos

Detroit

• • • The next 30 days may well be the most critical period during 1949 for the automobile industry.

At the end of this time, it will be known whether or not the sale of new cars and trucks has bounced back as vigorously as automobile sales managers expect. Automakers will also know whether their commitments for 1½ million vehicles between now and mid-June are in line with actual demand.

More important to the steel in-



Washington Steel Corporation announces a contest with \$500.00 in prizes for suggestions for new uses or applications of MicroRold stainless steel sheet and strip in gauges of .015 or thinner. Entries will be judged on the basis of economic practicability and originality by a board of three impartial judges selected by the corporation; the decisions of the board will be final. There is no limit on the number of suggestions that each entrant may submit.

By submitting an entry each contestant grants to Washington Steel Corporation the non-exclusive right to promote the manufacture and sale of any article or idea contained in the entry. All entries must be submitted on your company letterhead.

The contest closes at midnight, June 30, 1949, and all entries must be postmarked on or before that time. Winners will be notified by mail on or before July 31, 1949. Duplicate prizes will be awarded in case of ties.

Employees of Washington Steel Corporation and its advertising agency and members of their families are ineligible. The contest is subject to all applicable federal, state and local laws.

Mail entries to:

Contest Headquarters, Washington Steel Corporation, Washington, Pennsylvania.



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dustry is the fact that the next 30 days will tell the story about conversion steel. If sales of new cars are at a very high rate, there could be a last minute rush back into conversion. If sales hold to the normal curve there may still be a last minute demand for more steel which will be ultimately reflected in a need for conversion steel. On the other hand, if sales flop during the next 60 days, it may be that all conversion steel tonnage except that called for under noncancellable contracts will go by the board.

Diamond Imports Drop Equal to '39 Averages

Washington

• • • More than 10 million carats in industrial diamonds and worth about \$35 million were imported into the United States last year, according to figures now being tabulated by the Commerce Dept. This includes \$630,000 worth of diamond dust.

Foreign trade reports for January 1949 show a sharp drop in diamond imports for industrial use when compared with either January a year ago or the monthly average for 1948. They are now comparable to 1939 averages.

The first month's figures are 307,000 carats, valued at \$800,000 as compared with 569,000 carats valued at \$1.8 million for January 1948. The monthly average last year was 887.000 carats worth approximately \$2.8 million.

A substantial majority, both in quantity and value, of the 1948 supply, was imported from the Union of South Africa which supplied more than \$27 million worth.

Other principal exporters to this country were the Belgian Congo and Brazil-each with \$2.7 million worth. About \$1 million worth was obtained from the United Kingdom, exclusive of her colonies and dominions.

An unrevealed portion of the 1948 imports went into the national stockpile. All diamonds obtained through ECA which were suitable for the purpose automatically went to the stockpile.



Which blade? How many teeth per inch? How many strokes per minute?

These and other questions puzzle many a hack saw user. If they puzzle you, see your Victor distributor. He has the experience and knowledge to show you how to cut metals and plastics faster, easier and better ... how to choose the right blade for various materials . . . how to get the most from each stroke of the hack saw. Yes, a little advice from the Man Who Knows will save you time and money in the long run.

Ask your distributor for free copies of "Metal Cutting" and the famous Victor Wall Chart containing helpful hints on the selection, care and use of hack saw equipment.



AMA Group to Meet

New York

• • • • The Production Div. of the American Management Assn.; has announced a national conference of 825 production executives to consider methods to make production systems more quickly sensitive to changes in demand for output and to maintain an adequate work force at a time when work loads fluctuate. The sessions will be held here, Apr. 12 to 13, in the Waldorf-Astoria Hotel.

In announcing the meeting the AMA said that a recent survey of production executives showed that flexibility of budgeting and production scheduling and preparations to cushion the possible shock of layoffs due to the return of the buyer's market and technological displacements are a prime concern of production executives at present.

Representatives of management, labor and government will discuss these questions at six sessions of AMA's conference. Special attention will also be given the emerging pattern of wage demands by labor.

Jalopy Scrapping Lags

Detroit

• • • The number of jalopies being scrapped still lags far behind the annual average.

According to a report compiled by R. L. Polk & Co., Detroit, statisticians for the automotive industry, 855,517 passenger cars were scrapped during 1948. This is far below the 24-year average figure of 1,617,853 cars a year, Mr. Polk said.

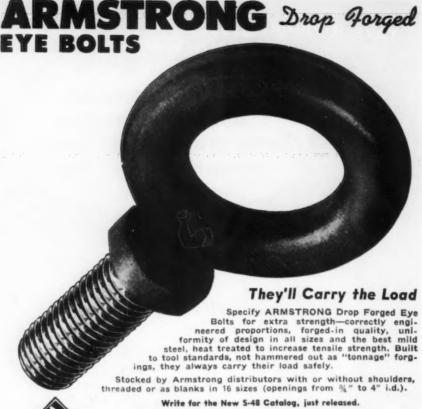
The story is somewhat different in the truck field. A total of 307,-867 trucks went off the road last year, compared with the 24-year average of 249,602.

The agency estimates that total number of vehicles scrapped is approximately equal to the replacement market.

Motor vehicles scrapped during the 24-year period, 1925 through 1948, total 44,818,927 of which 38,828,471 were passenger cars and 5,990,456 were trucks.

Mr. Polk estimates that the total number of vehicles in operation has increased from 17,476,254 in 1924 to 38,894,883 in 1948.



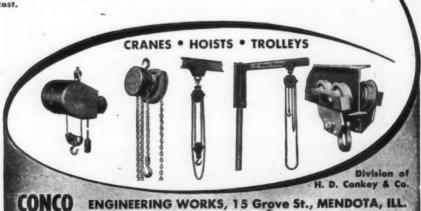


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Ups Allocations For Additional Equipment

Washington

• • • An additional \$20 million worth of American-made machinery and equipment was included in ECA authorizations which were approved last week for first half delivery. About \$1 million in railroad and other transportation equipment, for the first quarter 1950, was also approved for French North Africa.

Allocations included \$4.6 million in construction and mining equipment for France and her colonies, \$1 million worth of iron and steel mill products and materials, and \$1.8 million worth of metalworking equipment for Italy.

Machine tool authorizations included \$1.3 million worth for France and \$120,000 worth for Norway.

No Change Reported In National Gypsum's Net

• • • President Melvin H. Baker told stockholders of the National Gypsum Co. at their annual meeting that sales and net earnings of their company for the first quarter of 1949 will be about the same as reported for the corresponding period of 1948. In the first 3 months of last year, the company listed sales of \$15,388,-000 and earnings of \$1,521,000.

Band Saw Manual Available

• • • Printed copies of revised Simplified Practice Recommendation R214-48, Metal-Cutting Band Saws (Hard Edge, Flexible Back), are now available, according to an announcement by the Commodity Standards Div. of the National Bureau of Standards.

The recommendation, established in 1945, consists of a simplified list of stock types and sizes of hard edge, flexible back, metalcutting band saws. Width, thickness, and number of teeth per inch are listed for two types of saws, regular and skip-tooth. Size tolerances as well as general provisions covering type of tooth set, shape of teeth, width of set and hardness are included.

The revision adds five sizes of regular type and two sizes of skip-tooth metal-cutting band saws, and adds certain general provisions relating to type of tooth set.

Copies of the recommendation are for sale by the Superintendent of Documents, Government Printing Office, Washington 25, D. C., for 10¢ each. A discount of 25 pct will be allowed on orders of 100 or more copies.

Increased Efficiency

St. Louis

• • • • The installation of a radiotelephone communications system to control railroad movements in the plant area of Granite City Steel Co. was completed recently and is now in full operation, according to Hayward Niedringhaus, president of the company.

In announcing the new system, Niedringhaus said the company had been informed by Southwestern Bell Telephone Co. that it is the first "heavy" industry in a metropolitan area west of the Mississippi River to have its intra-plant railroad operations controlled by radio-telephone.

Radio-telephones were used extensively during the war for aircraft and for ground communications. The system is now in use by numerous police departments, on major railroads and on river boats. It is different from the mobile telephones now available for company or private automobile.

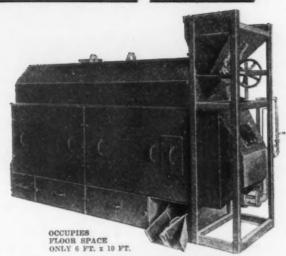
Age Limit Set for Minors

Washington

••• Because of the rapid increase in the use by industry of new substances known as radioactive isotopes—one of the byproducts in the development of atomic energy—the Secretary of Labor is considering a hazardous occupations order under the Fair Labor Standards Act barring the employment of minors between 16 and 18 years of age in workrooms where such materials are manufactured, used, packaged or stored.

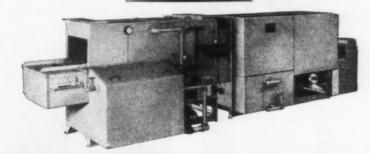
A recent investigation of occupational hazards in the new field of isotopes disclosed that the Atomic Energy Commission is already enforcing elaborate safety precautions in plants and contracting laboratories under its jurisdiction. The commission ad-

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- This return type machine is ideal for handling screw machine products, stampings, slugs, cups and other parts.
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This Conveyor Type Machine-Washes - Rinses-Dries 360 Baskets per hour

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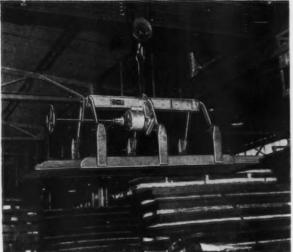
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Handle loose or bundled sheets with one of these C-F Lifters and you save TIME and SHEETS, because C-F Lifters, under one man end control, can handle more sheets per load safer, faster and more economically. Tong action grips loads tigthly, yet design features like wide bearing surfaces give full protection to stock edges. End control of C-F Lifters permits closer stocking of piles—resulting in more efficient use of storage facilities.

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ministratively establishes an 18year minimum for work involving exposure to radioactivity in such establishments. Further, in contract laboratories, a clause in the contract requires compliance with all federal, state and local laws and regulations applicable.

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Again Heads Waste Group

Chicago

••• The Metal Dealers Div. of the National Assn. of Waste Material Dealers, Inc., 1000 strong, reelected Emanuel Hettlemen, K. Hettlemen & Sons, Baltimore, president at their annual meeting at the Stevens Hotel here, Mar. 21 to 23.

Also reelected by this division were vice-presidents: D. J. Chiappari, Charles Harley Co., Los Angeles; Joseph Roth, Roth Bros. Metal Co., Inc., Syracuse, N. Y.; Hyman Moskowitz, Moskowitz Bros., Cincinnati; and Leo Selig, J. Solotken & Co., Inc., Indianapolis. Clinton M. White, NAWMD, New York, was reelected secretary.

GM Expects Big Crowd

Detroi

• • • General Motors expects to attract nearly half a million persons to Convention Hall, Apr. 10 through 17 for a showing of its 1949 line of cars.

In addition to the displays shown for the first time at the Waldorf in January, GM is adding many animated exhibits describing the styling, research and engineering activities of the corporation.

Included in the new exhibits are streamlined city coaches with capacity of 55 passengers, a complete diesel locomotive cab assembly and a fully-transparent panel truck made of plexiglass for show purposes.

Other exhibits will include the latest jet-model Allison engine, General Motors parts and accessories line, Frigidaire and Delco appliances and other diesel engine activities

General Motors employees will see the exhibits first on the evening of Apr. 8 and all day Apr. 9 with the public showing starting on Sunday, Apr. 10.

Small Business Obtains 70 Pct Army Contracts

Washington

• • • Reviewing its procurement program during the first 7 months of fiscal year 1949, the Dept. of the Army has announced that 44¢ of every contract dollar went to "small business" concerns. Gordon Gray, Assistant Secretary of the Army, points out that the number of contracts awarded to small concerns comprised 70 pct of the total number of contracts let during the 7-month period.

"Small business" firms are generally defined as those having 500 or fewer employees, are independently owned and operated and are not dominant in their fields of business.

A total of 198,483 procurement contracts, amounting to \$504,541,682, were awarded to small business firms during the period of July 1, 1948 to Jan. 31, 1949, as compared with a total of 283,173 procurement awards amounting to \$1,158,104,614 during the same period.

The figures shown represent prime contracts. Since a considerable portion of the work called for in prime contracts is performed through sub-contracting, the figures consequently do not reflect all the benefits accruing to other small business firms serving as sub-contractors for firms receiving Army contracts.

More About Diesels

Detroit

• • • Sound Industrial Applications is the subject of a 2-week training program being given by Detroit Diesel Engine Div. of General Motors Corp. to its retail sales personnel.

The first week of training is devoted to a study of the basic diesel engine, its components and operating characteristics.

The second and final week is spent on analysis of power requirements, suitable drive arrangements and other factors that must be considered in connection with specific types of machinery

A special text, "Application Data Manual" has been prepared for the course.

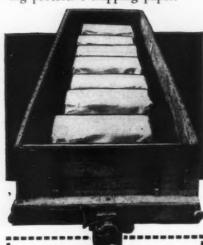




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Report Claims Rise For Unemployment Benefits

Washington

• • Claims for unemployment benefits continued to rise during the week ending Mar. 19, the Federal Security Agency reported.

FSA said that unemployment claims totaled 1,946,500—an increase of 6900 over the previous week. But the agency pointed out that the rate of increase was the smallest of any non-holiday week since November 1948.

Initial claims (as contracted with continuing claims) rose from 319,000 to 331,100 during the week.

A total of 32 states reported drops in initial claims during the week. Initial claims increased by 2800 in Pennsylvania, but declines ranging from 2000 to 3000 were reported from California, Michigan, Ohio, New Jersey, and New York.

Profit Reported Down

Roston

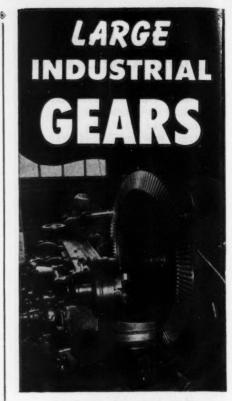
• • • Net profit of Perkins Machine & Gear Co., West Springfield, Mass., for 1948 dropped to \$67,700 from \$129,000 the previous year. Sales last year were \$2,916,000; previous year, \$3,-126,000.

According to John Oakley, president, the drop in earnings last year was due to extensive engine design changes, requiring engineering and complete tooling on new aircraft and propeller gears. This, coupled with reduced customers's hipping schedules, particularly in the household appliance industry, resulted in an operating loss in the final 1948 quarter.

Steelworkers Are Safer

Washington

plant are only half those of manufacturing as a whole or for other metalworking industries. The 1948 rate, according to preliminary figures by the Bureau of Labor Statistics, stood at about 7.2 per million man-hours for iron and steel as compared with 13.2 for all manufacturing.



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Bevel and mitre gears up to 60" dia. are cut on gear planers to accurate tolerances.

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up to 145" diameter

You can save time, money and errors in your large and heavy industrial gear requirements with the prompt, custom service of SIMONDS GEAR. Within easy shipping distance of many heavy industry plants—with a personalized attention to your specific gear requirements—SIMONDS GEAR is able to assure you fast, accurate gear service for all heavier gear needs. Size range includes: Spur Gears up to 145"—Bevel and Mitre Gears up to 60"—Worm Gears up to 72"—also worms, worm gears, racks and pinions. Materials include: cast or forged steel, gray iron, bronze, silent steel, rawhide and bakelite. Place your next heavy gear inquiry with SIMONDS GEAR and test the difference!



Announces Seasonal Production Cuts In Home Appliance Field

Pittsburgh

• • • Production schedules at the Westinghouse Electric Appliance Div. plant, Mansfield, Ohio, are being reduced on electric ranges. Laundromat automatic washers, electric clothes dryers and some small appliances. Total employment, however, remains above the pre-war maximum of 5000 and the wartime peak of approximately

The assembly of some of these products will go on one shift beginning the week of Apr. 4, and the total cuts in production will result in the furloughing of approximately 1100 of the Mansfield plant's 7200 men and women.

The refrigerator production line, for the present will not be cut back and will continue on two

"This is a seasonal reduction and is the result of present inventory," J. H. Ashbaugh, vice president in charge of the division.

To Terminate All Overseas Offices of OFL by July

Washington

• • • With only \$13 million worth of surplus property in inventory, the Office of Foreign Liquidation has begun closing out its overseas offices and will liquidate the entire organization as of June 30,

Orders have been issued for the closing of the Latin American and Australian offices as of Mar. 31, and for termination of the remaining European and Pacific offices as of May 15. All others have already been terminated.

Any uncompleted work after June 30 will be taken over by the State Dept. or assigned to other agencies. If any surplus remains, the original owning agency will make disposal.

During the life of the organization, the OFLC disposed of approximately \$10.5 billion worth (at original cost) of surpluses located overseas. A substantial portion was sold through bulk sales to foreign governments.

About \$2 billion was received from the disposals or about 20 pct of original cost.

P&H Crawler Cranes do yard jobs FASTER, SAFER, AT A SAVING!

Have you the handling efficiency outside your plant that you have inside? P&H Crawler Cranes can give you fast, flexible, versatile yard service with one-man operation - to speed materials handling. P&H Crawler Cranes with their Added Value features are wise investments. Send for literature!



CRAWLER

P&H Crawler Cranes are easy to operate because of P&H's smooth, responsive hydraulic control. You can operate them in close quarters because of P&H's exclusive and simplified method of steering and braking.



Equipped with magnet, the P&H Crawler Crane loads scrap quickly. For those countless lifting jobs in plant vards, you can make no better choice than a P&H. Its construction of rolled alloy steels means extra long, trouble-free service.



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Bulk materials are moved speedily and" easily with a P&H Crawler clamshell and movement is not restricted to inplace trackage. In addition P&H clear-view, all-weather cabs permit year-round operation.

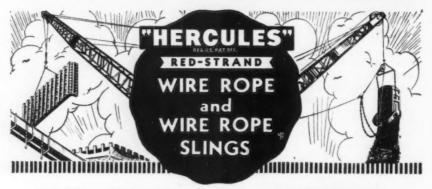
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Enters Final Judgment Against 18 American Screw Manufacturers

Washington

• • • Attorney General Tom C. Clark has announced the entry in the Federal Court at Chicago of a final judgment in a civil anti-trust suit against Phillips Screw Co., American Screw Co., and 16 other screw and screw driver and bit manufacturers.

The judgment, which was consented to by the parties, terminates various domestic and foreign restraints in the field of cross-recessed head screws and bolts, commonly known as "Phillips" screws, and tools used in connection therewith.

The defendants account for approximately 75 pct of the total of such products manufactured and sold in the United States.

The attorney general said the judgment entered recently calls for the cancellation of the domestic patent license agreements under which domestic prices have been fixed. It also provides for the termination of international patent license agreements between Phillips Screw Co., and American Screw Co., and leading English, Canadian and Japanese screw manufacturers, which have been the basis for an international division of territories.

The judgment also requires Phillips and American to license, on a reasonable royalty basis, patents owned, acquired or applied for by them within 5 years from the date of the judgment. It further requires American to supply, upon request and without charge, technical information to any licensee under its patents.

Assistant Attorney General Herbert A. Bergson, head of the Antitrust Div., said: "This is another instance in which the Antitrust Div. has been able to restore competitive conditions to a vital industrial field.

"By allocating markets and fixing prices through patent license agreements these defendants had to a large extent eliminated competition in the manufacture and sale of 'Phillips' screws, which are of increasing importance to American and world industry. This decree cancels those illegal arrangements and opens up to

competitive forces this necessary industrial commodity."

The defendants in this case include the following companies:

Phillips Screw Co., Portland Oregon; American Screw Co., Providence; American Hardware Co., New Britain, Conn.; Continental Screw Co., New Bedford, Mass.; Illinois Tool Co., Chicago; National Screw & Mfg. Co., Cleveland; Parker-Kalon Corp.. New York; Pheoll Mfg. Co., Chicago; Russell, Burdsall & Ward Bolt & Nut Co., Port Chester, N. Y.; Scovill Mfg. Co., Cow Waterbury, Conn.; Apex Machine & Tool Co., Dayton; Black & Decker Mfg. Co., Towson, Md.; Bridgeport Hardware Mfg. Corp., Bridgeport, Conn.; Independent Pneumatic Tool Co., Chicago; North Brothers Mfg. Co., Philadelphia; Stanley Works, New Britain, Conn.; Vlchek Tool Co., Cleveland; Parker Mfg. Co., Worcester.

Reports Increased Sales With Decline in Income

Cleveland

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• • • Net sales of Apex Electrical Mfg. Co. for the year 1948 reahed an all-time high of \$34,181,464, President C. G. Frantz reported in a letter to stockholders. Net sales for 1947 totaled \$31,443,431.

Consolidated net income for 1948, after all charges and provision for federal income taxes, amounted to \$1,477,891, compared with \$1,803,443 for 1947.

Mr. Frantz said the company's decrease in net income was a direct result of the sharp deline in business volume experienced during November and December by most all segments of the home appliance industry. This drop in volume, he said, was the sharpest ever felt by the manufacturers of major home appliances.

Recent slight modifications in Regulation W will prove helpful to the appliance industry, and there now are indications of improvement in the near future, Mr. Frantz said. Full restoration of the appliance industry, however, requires complete elimination of restrictions on down payments.

Expenditures on plant and equipment during 1948 amounted to \$818,498, chiefly to provide additional facilities for manufacture of new products such as the Apex Wash-a-Matic clothes washer and automatic clothes dryer.

Named Bank Director

New York

• • • Lawrence Schacht, president of Schacht Steel Construction, Inc., has been elected a director of the National Bronx Bank of New York.



CUSTOM BUILT SHEARS FOR ANY APPLICATION

Hallden Automatic Flattening and Cutting Off Machines can be built into lines requiring special shearing applications.

Hallden Automatic Shears are designed to permit continuous feed of metal through the machine by synchronizing the flattener with the flying shear. Cutting accuracy can be held to plus or minus 1/64".

Hallden Shears are self-contained units which, under normal operation, require little maintenance other than lubrication.

Hallden's flexible design allows quick changing of shear knives and easy removal of flattening rolls for grinding. The shear knives always move in a mutual plane.

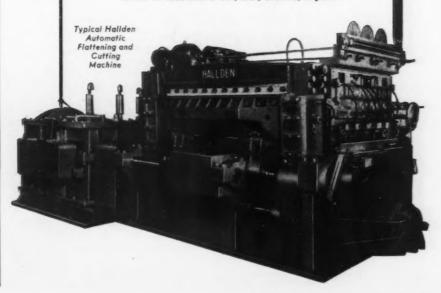
If you have a shearing problem, consult Hallden, the shearing specialists.

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Sales Representatives

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"SUPPLYING industry with H-VW-M equipment for electrolytic applications brings up many straightforward questions. This one's duck soup to answer.

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improves working conditions, maintains a high quality product and develops savings that more than justify the investment even where the work is highly diversified. Wherever H-VW-M con-

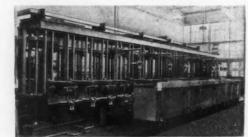
veyors-full or semi-automatic. or combinations of both are installed they pay off many ways: Reduce rejects, lessen cost per unit of processed work, noticeably improve work, noticeably improve uniformity of finished prod-uct. Hundreds of H-VW-M conveyors are in successful operation today in many different industries.

For complete information, ask your H-VW-M representative for copies of bulletins FA-103 and SA-101, or write to headquarters.

"What's so good about H-VW-M AUTOMATIC CONVEYORS?"

M. J. MOLL, Chief Equip. Sales Engineer, H-VW-M COMPANY

Hanson-Van Winkle-Munning has supplied the plating industry for over 70 years. Our sales-en gineers are thoroughly familiar with every step in the process of electropiating and polishing. It is this overall knowledge that has made H-VW-M "Headquarters" for electroplating and polishing equipment, supplies and technical assistance.



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Increase in Canadian Production of Copper

Toronto

· · Canadian production of copper in January totaled 20,805 tons as compared with 20,447 tons in the like months of 1948 and 14,360 tons in January, 1947.

Refined copper at 35,172 tons in January compares with 16,234 tons in 1948 and 13,346 tons in 1947. Exports of refined copper totaled 13,727 tons valued at \$4,999,180 in January this year against 11,743 tons valued at \$4,345,032 tons in January, 1948. Domestic consumption of refined copper was estimated at 10,303 tons for January.

Production of nickel in January amounted to 11,180 tons against 10,774 tons in January, 1948 and 9766 tons in the same month of 1947. Exports of nickel in January totaled 10,140 tons valued at \$7,-632,996 compared with 14,683 tons valued at \$8,016,250 for January, 1948.

Fansteel's Sales Up in '48

• • • Robert J. Aitchison, president, Fansteel Metallurgical Corp., in his annual letter to stockholders said, "The financial condition of Fansteel and its subsidiaries continues to be excellent." Net sales last year for Fansteel and its wholly owned subsidiaries, Tantalum Defense Corp. and Weiger Weed and Co., totaled \$7,-381,876.93. This is an increase of \$1,100,000 above 1947 volume, Consolidated net income after federal taxes was \$348,961.21.

Vascoloy-Ramet Corp., unconsolidated subsidiary of Fansteel, had a net income last year of \$58,131.09, after taxes. Net sales of Vascoloy-Ramet totaled \$2,413,-483.41, or an increase of approximately \$300,000 over the comparable figure last year. Until last year, ownership of the capital stock of Vascoloy-Ramet was shared by Fansteel and Vanadium Alloy Steel Co. During August last year, ownership of the common stock of the Vascoloy-Ramet Corp. was taken over by Fansteel.

Tantalum Defense Corp. finished last year with a net loss before federal taxes of \$86,649.54.

Willard H. Dow Killed In Canadian Plane Crash

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. . . Willard H. Dow, president and chairman of Dow Chemical Co., his wife and three other per-

sons. were

killed March

plane in which

they were fly-

ing to attend a

from London.



Willard H. Dow

Ontario. Dr. Dow, who had been president of Dow Chemical since 1930, has been rated as one of the nation's foremost chemists. He graduated from the University of Michigan in 1919 and held a number of honorary degrees. He served with the regular army in the first world war. Recently he was a member of the Navy Munitions Board and the Chemical Warfare Service Advisory Board. He became president of Dow when he was 33, at the death of his father, who founded the company in 1897.

Increases Quotas For Export of Wire And Sheet Metal Products

Washington

· · · Increases in second quarter 1949 export quotas for eight iron and steel wire and sheet metal products have been announced by the Office of International Trade. Increases range from 2500 to 5000

Export quotas for all iron and steel products for the second quarter were first announced early in February. But current supplies of the wire and sheet products are easing sufficiently to permit an increase in allowable exports. Revised quotas are:

Electrical sheet 13,000 to 18,000 tons H.R. Strip band and

hoop . 16,500 to 20,500 tons
Wire, uncoated . 19,000 to 22,000 tons
Wire, galvanized . 20,000 to 24,000 tons
Wire, barbed . 15,000 to 17,500 tons Wire, galvanized 20,000 to 22,000 tons
Wire, barbed ... 15,000 to 17,500 tons
Woven wire fencing 4,800 to Open-end to
Nails, wire
Nails, unspecified 7,500 to 10,000 tons 4,800 to Open-end tons

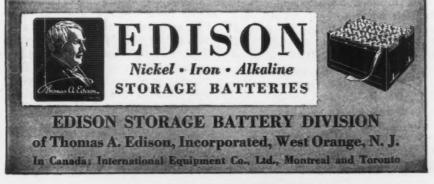


Is your FIRM getting its first taste of battery-powered handling by using one or more motorized hand trucks? Chances are that you're trying out your equipment on all sorts of jobs . . . and realizing in how many ways battery-industrial trucks can speed handling and increase production.

If so, now is the time to become acquainted with long-life Edison Nickel-Iron-Alkaline Storage Batteries . . . the batteries that give you real dollar economy. Did you know they're electrically foolproof - require no critical adjustment of charge rates - can't be injured by reverse charging, short circuiting or similar electrical accidents? Did you know they're built of rugged steel inside and out to withstand rough usage? Did you know Edison Service Engineers check your batteries regularly and help you to maintain them in top condition?

Edison Batteries last and last, and so through the years their superiority costs you less and less. Prove this to yourself by asking the Edison users in your own vicinity, then profit by their experience.

ADVANTAGES OF EDISON NICKEL-IRON-ALKALINE BATTERIES: They're mechanically durable; electrically foolproof; quickly and easily charged; simple to maintain; not injured by standing idle.



Buying Reported Spotty; Inquiries Good; Outlook Uncertain

• • • Major segments of the mamachine tool industry reported this week that the sales pattern of the past 33 months continues relatively unchanged, with buying spotty, volume of inquiries good, but outlook uncertain.

Continuing the trend of mergers, consolidations and outright company sales that has steadily reduced the number of companies comprising the machine tool industry since the end of the war. Defiance Machine Works, Inc., Defiance. Ohio, was offered for sale this week. Defiance is housed in a modern plant containing about 175,000 sq ft of floor space. The company, established in 1850, is a going business, producing horizontal boring mills, drill presses. and a new type of plastic preform press. Defiance employs 400 workers.

The Bullard Co., Bridgeport, Conn., recently added to its line the products previously manufactured by Universal Boring Machine Co., Hudson, Mass. According to E. C. Bullard, president, work will start immediately to transfer operations from Hudson to Bridgeport. Universal Boring Machine Co. was established in 1906 and a few years ago was purchased by National Can Co. In addition to the line of horizontal boring and drilling machines Bullard will manufacture the Universal Precison Machine Aligning Level.

In Cleveland, Tell Berna, general manager, National Machine Tool Builders' Assn, revealed that British machine tool exports increased 400 pct during the period 1938-1949. Based on an 11-months' average, British machine tool exports in 1938 amounted to 372,784 lb sterling, compared with 1,153,868 lb sterling for the corresponding period of 1948.

U. S. machine tool exports, he pointed out, on a 12 months' average, for 1938 were \$5,380,000 compared with 1948 monthly exports,

British Machine Tool Exports Showed Big Increase in 1938-1949 Period

based on a 9 months' average, of \$5,373,775. U. S. machine prices have increased 60 pct since 1938, however, and fewer U. S. machines were exported in 1948 than in 1938, making the British increase more serious from the point of view of the U. S. industry than it would first appear.

With the increase in British exports has come a change in the fundamental export market structure. China is practically gone, as are Australia, the United Kingdom, and Germany. Russia is blocked.

Perhaps a major underlying reason for the increase in British machine tool exports is the risk insurance available to British builders from the government. With the insurance, a British machine tool builder can collect in 60 days, if the foreign buyer defaults for any reason. The U. S. machine tool industry has made representations for a similar insurance plan to the Export-Import Bank, with little or no result.

In Chicago, toolmakers report they are getting releases on some of the machinery ordered under the ECA program. However, so far the only type of machines that have been cleared are specials. Chicago makers report that it appears that ECA is not okaying the final sale of American machine tools in the cases in which the same type of machine tool is manufactured in the foreign country which has ordered this specific machinery.

A case in point is the French inquiry for radial drills, which so far have not been released and appear that they won't be, because the French do make standard types of radial drilling machines. The same is true on standard engine and tool lathes.

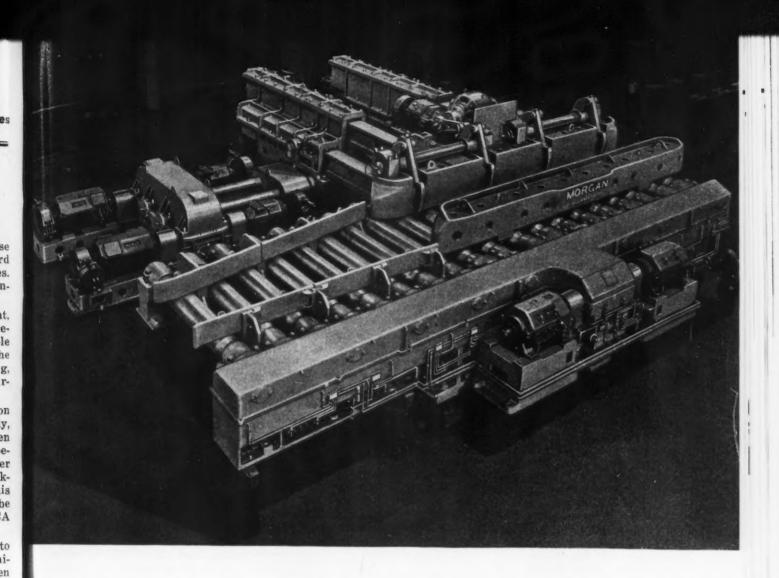
The French at the moment, Chicago machine tool makers report, are doing a considerable volume of business with the English on some types of tooling, because of a more favorable currency setup.

Orders have been cleared on some types of machinery for Italy, but here again clearance has been confined to heavy tools and specials. One machine tool maker in Chicago with a 4-months' backlog reports that 80 pct of this volume is special tools to be shipped overseas under the ECA program.

Prices on gray iron castings to machine tool makers in the Chicago area have in cases been lowered from 1ϕ to $1\frac{1}{2}\phi$ per lb compared with the same casting prices 90 days ago. Special castings are off from $\frac{1}{2}\phi$ to 1ϕ per lb and the machine tool makers expect that prices may slide further. They report that this dip in casting prices does not permit them to reduce the cost of the machinery because their manufacturing volume is so much lower now than it was last year.

In Detroit a survey of machine tool suppliers and users indicates a continuation of the previous low level of buying. Some sources are inclined to describe the period as one of "disturbing quiet." Numerous requests for quotations continue to come in, however, according to reliable machine tool sources.

There has been no change during the past week of the reported tooling for a new engine at Chrysler. The reported development of a 6-cylinder, valve-in-head engine for Ford continues to blow hot and cold; no confirmation of such a program has been found.



45" BLOOMING MILL TABLE AND MANIPULATOR

Morgan 45" Blooming Mill Manipulator with Front Mill Table. Manipulator is of the overhead type, electrically driven, with retractable heads so the table rollers can be removed without dismantling the manipulator heads. Table girders are of cast steel box section type with integral oil trough on drive side. All gears are totally enclosed, operating in oil, and have hardened teeth. All bearings are of the anti-friction type lubricated through a centralized motor operated system.



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Metals Market Weak Following New Wave of Price Reductions

Aluminum, Lead and Copper Reflect Decreases But Show No Strength

New York

· · · The nonferrous metals were hit by another wave of price reductions last week which were accompanied by further reductions in scrap and aluminum ingots. The fourth reduction in the lead price in the space of a month occurred on Apr. 1 when American Smelting & Refining Co. reduced its price by 1¢. During the month the price of lead dropped a total of 5.50¢ to a price of 16.00¢ New York. St. Joseph Lead Co. acted on Monday, establishing the St. Louis price at 15.80¢. The current price is lower than at any time since April 1948 when it jumped from 15.00¢ to 17.50¢.

A reduction of 1/4¢ per lb in the price of copper was made by AS&R first on Mar. 28, a price which was being freely offered to consumers by the following day. It is learned that by Monday two primary producers had opened their books for May at the 23.50¢ price. Sales are reported to have been made at that level to fabricating subsidiaries.

There is considerable speculation in consumer circles as to why such a small reduction was made. There is a good possibility that the reduction may be sufficient to capture an appreciable portion of the available tonnage. But consumers had been expecting a significantly lower price, particularly in view of the low level of scrap prices. Some consumers say that scrap prices are such as to warrant 18¢ copper or less. The 23.50¢ copper price has remained unchanged since August 1948.

The lead and zinc markets are reported to be very quiet. It is learned that there is very little free tonnage being placed for copper. Consumers are wary of buying at current market prices when repeated reductions have already taken place and further readjustments are believed to be in the wind. There is no doubt that the price of copper would have been lower by this time except for the loss of copper in the Utah mine strike. Tonnages have accumulated for delivery to the stockpile. which further serves to bolster the market.

Copper scrap buying prices have dropped another 1/2¢ to 1¢ per lb. Aluminum scrap prices have been reduced by 1/4¢ to 1¢ per lb. The ingot markets are completely inactive, and there are no scrap buyers. Ingot producers believe that scrap prices have dropped to purely fictitious levels, because they say that tonnages could not be bought at those figures. Zinc scrap prices have dropped by 1/4¢ to 1¢ per lb. Lead scrap has dropped by 1/2¢ to 21/2¢ per lb. Refineries and brass mills are completely disinterested in the scrap market.

Last week it became known that competition in the aluminum market had worked some changes in the deal between Reynolds Metals

Monthly Average Prices

• • • The average prices of the major nonferrous metals in March based on quotations appearing in The Iron Age, were as follows:

	CREEN
Per	Pound
Electrolytic copper, Conn.	
Valley	23.490
Lake copper, Conn. Valley.	23.625
Straits tin, New York	\$1.03
Zinc, East St. Louis	17.055
Zinc, New York	17.755
Lead, St. Louis	18.785
Load New York	18 981

Co. and the Wisconsin Electric Cooperative (THE IRON AGE, Feb. 17, p. 166).

At the time of the initial agreement, the Aluminum Co. of America had a 4-year backlog of cable orders, and there was no other cable being offered to the market at that time. It had not been foreseen that Permanente would be offering cable in such heavy tonnages this year. Under the revised Reynolds contract, a minimum of 13.5 million lb of cable will be deliverable this year. About 2 million lb a month can be delivered during April, May and June. Earlier deliveries will be due to Reynolds' contracts with three independent stranders-Southern Electrical Corp., Chattanooga, Tenn.: Midland Wire Co., Tiffen, Ohio; and Bergen Wire and Rope Corp., Lodi, N. J. Reynolds operates one stranding mill at Lister Hill, Ala.

The revised agreement requires a deposit of \$1.4 million due by May 1, in contrast to the former requirement of \$6 million by May 14. Reynolds may cut its deliveries of cable during the first 3 years of the contract to the tonnage of orders on hand from cooperatives as of Aug. 1.

The deposit figure calls for minimum deliveries of 35 million lb during the 3 year period.

Nonferrous	Metals	Prices			
Mar. 30	Mar. 31	Apr. 1	Apr. 2	Apr. 4	Apr. 5
Copper, electro, Conn	23.25-23.50	23.25- 23.50	23.25-	23.25-	23.25 23.50
Copper, Lake, Conn 23.625	23.625	23.625	23.625	23.625	23,625
Tin, Straits, New York \$1.03	\$1.03	\$1.03	\$1.03	\$1.03	\$1.03
Zinc, East St. Louis 16.00	16.09	16.00	16.00	16.00	16.00
Lead, St. Louis 16.80	16.89	15.85	15.85	15.80	15.80

	N
Primary Metals	
(Cents per lb, unless otherwise n	oted)
Aluminum, 99+%, 10,000 lb, freigh allowed Aluminum pig Antimony, American, Laredo, Tex. Beryllium copper, 3.75-4.25% Bd dollars per lb contained Be Beryllium aluminum 5% Be, dollars per lb contained Be Bismuth, ton lots Cadmium, del'd, Cobalt, 97-99% (per lb). \$1.80 t Copper, electro, Conn. Valley. 23.25 t Copper, lake, Conn. Valley. 23.25 t Copp	. 17.00
Aluminum pig	. 16.06
Beryllium copper, 3.75-4.25% Be	824 50
Beryllium aluminum 5% Be, dollars	8
Bismuth, ton lots	\$52.00
Cadmium, del'd \$1.80 t	\$2.00
Copper, electro, Conn. Valley . 23.25 t	0 23.50
Gold, U. S. Treas., dollars per oz	\$35.00
Iridium, 99.8%, dollars per troy oz\$100 t	o \$110
Lead, St. Louis	15.86
Magnesium, 99.8+%, f.o.b. Freeport	90.50
Magnesium, sticks, carlots	34.50
f.o.b. New York	to \$90
Nickel, electro, f.o.b. New York Palladium, dollars per troy oz.	\$24.00
Platinum, dollars per troy oz\$72	to \$75
Tin, Grade A, New York	\$1.03
Zinc, New York	16.00
Magnesium, 99.8+%, f.o.b. Freeport Tex. Magnesium, sticks, carlots Mercury, dollars per 76-lb flask f.o.b. New York \$87 Nickel, electro, f.o.b. New York Palladium, dollars per troy oz Platinum, dollars per troy oz Platinum, dollars per troy oz Tin, Grade A, New York Zinc, East St. Louis Zinc, New York Zirconium copper, 10-12 pct Zr, per lb contained Zr	\$12.00
D 1. 1.4.4.1	
Remelted Metals	
Brass Ingot (Published prices, cents per 1b del	laramad
carloads)	vereu,
85-5-5-5 ingot No. 115 17.50*	18.50
No. 115 17.50° No. 120 17.00° No. 123 16.50°	18.00 17.50
No. 305 No. 315 88-10-2 ingot	23.75 20.75
88-10-2 Ingot No. 210 No. 215 No. 245 Vellow ingot No. 405 14.50*	30.50
No. 215	27.50 21.75
Yellow ingot	
Manganese bronze	10.00
No. 421 F.o.b. Philadelphia.	21.50
Aluminum Ingot	
)
(Cents per lb, lots of 30,000 lb 95-5 aluminum-silicon alloys 0.30 copper, max. 22.56 0.60 copper, max. 22.22 Piston alloys (No. 122 type) 19.25 No. 12 alum. (No. 2 grade) 17.75 108 alloy 19.25 195 alloy 19.25	-22.75
0.60 copper, max. 22.25	-22.50
No. 12 alum. (No. 2 grade) 17.75	-18.75
Piston alloys (No. 122 type), 19.25 No. 12 alum. (No. 2 grade) 17.75 108 alloy 19.25 195 alloy 19.75 13 alloy 22.25	-19.75 -20.25
13 alloy AXS-679	-22.75
Steel deoxidizing aluminum, notch-	bar
granulated or shot	
Grade 1—95 pct-95½ pct 20.50 Grade 2—92 pct-95 pct 19.50	-20.75 -19.75 -18.75
Grade 2—92 pct-95 pct 19.50 Grade 3—90 pct-92 pct 18.50 Grade 4—85 pct-90 pct 17.50	-18.75 -17.75
Electroplating Supplies	
Anodes	
(Cents per lb, freight allowed, 500 lb lots)	in

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n

Grade Grade	3 - 90	pet-92 pet-90	pet			18.50	-18.75	
1	Elect	ropla	ting	S	up	olies		
Anode	28							
((Cents ;	per 1b. 500	freig	ta)	allo	wed.	in	
Conner	7							
Cast	, oval	15 in.	or l	ong	er		38.64	

Electrodeposited Rolled, oval, straight, delivered Ball anodes Brass, 80-20	34 % 37.34 38 %
Cast, oval, 15 in. or longer Zinc, oval, 99.99	35 %
Ball anodes Nickel 99 pct plus	25.00
Cast	59.00
Cadmium Silver 999 fine, rolled, 100 oz. lots, per troy oz, f.o.b. Bridgeport.	\$2.15
Conn.	79
Chemicals (Cents per lb. f.o.b. shipping poi	nt)
Copper cyanide, 100 lb drum	48.00
Copper sulfate. 99.5 crystals, bbls Nickel salts, single or double, 4-100	9.10
lb bags, frt. allowed	18.00
	24.50
Silver cyanide, 100 oz. lots, per oz. Sodium cyanide, 96 pct domestic	5.9
200 lb drums Zinc sulfate, crystals, 22.5 pct, bags Zinc sulfate, 25 pct, granules, bbls, frt allowed	19.25

Mill Products

Aluminum

(Base prices, cents per pound, base 30,000 lb, f.o.b. shipping point, freight allowed)

Flat Sheet: 0.188 in., 2S, 3S, 26.9¢: 4S, 61S-O, 28.8¢; 52S, 30.9¢; 24S-O, 24S-OAL, 29.8¢; 75S-O, 75S-OAL, 36.3¢; 0.081 in., 2S, 3S, 27.9¢; 4S, 61S-O, 30.2¢; 52S, 32.3¢; 24S-OAL, 30.9¢; 75S-O, 75S-OAL, 38¢; 0.032 in., 2S, 3S, 29.5¢; 4S, 61S-O, 33.5¢; 52S, 36.2¢; 24S-O, 24S-OAL, 37.9¢; 75S-O, 75S-OAL, 47.6¢.

Plate: ¼ in. and heavier: 2S, 3S, F, 23.8¢; 4S-F, 26¢; 52S-F, 27.1¢; 61S-O, 26.6¢; 24S-F, 24S-FAL, 27.1¢; 75S-F, 75S-FAL, 33.9€.

Extruded Solid Shapes: Shape factors 1 to 4, 35.1¢ to 66¢; 11 to 13, 36.1¢ to 78¢; 23 to 25, 38.2¢ to \$1.07; 35 to 37, 45.7¢ to \$1.65; 47 to 49, 67.5¢ to \$2.41.

Rod, Rolled: 1.064 to 4.5 in., 2S-F, 3S-F, 34¢ to 30.5¢; Cold-finished, 0.375 to 3.5 in., 2S, 3S, 36.5¢ to 32¢.

2S, 3S, 36.5¢ to 32¢.

Screw Machine Stock: Drawn, ½ to 11/32 in., 11S-T3, R317-T4, 49¢ to 38¢; cold-finished, ½ to 1½ in., R317-T4, 37.5¢ to 35.5¢; % to 2 in., R317-T4, 37.5¢ to 35.5¢; ½ to 3 ½ in., R317-T4, 35.5¢ to 32.5¢; 2½ to 3½ in., R317-T4, 33.5¢ to 22.5¢; 2½ to 3½ in., R317-T4, 33.5¢ to 22.5¢; Base 5000 lb.

Drawn Wire: Coiled, 0.051 to 0.374 in.: 2S, 36¢ to 26.5¢; 52S, 44¢ to 32¢; 56S, 47¢ to 34¢; 75S-T6, 76¢ to 55¢.

Magnesium

Magnesium

(Cents per lb, f.o.b. mill, freight allowed Base quantity 30,000 lb)

Sheet and Plate: Ma, FSa, ¼ in., 54¢-56¢: 0.188 in., 55¢-58¢: B & S gage 8, 58¢-60¢; 10. 59¢-61¢; 12. 63¢-65¢; 14. 69¢-74¢; 16. 76¢-81¢; 18, 84¢-89¢; 20, 96¢-\$1.01; 22. \$1.22-\$1.31; 24, \$1.62-\$1.75. Specification grade higher.

Extruded Round Rod: M, diam. in., ¼ to 0.311, 58¢; ½ to ¾, 46¢; 1¼ to 1.749, 43¢; 2½ to 5, 41¢. Other alloys higher.

Extruded Square, Hex. Bar: M, size across flats, in., ¼ to 0.311, 61¢; ½ to 0.749, 48¢; 1¼ to 1.749, 44¢; 2½ to 4, 42¢. Other alloys higher.

higher.

Extruded Solid Shapes, Rectanglea: M, in weight per ft, for perimeters of less than size indicated, 0.10 to 0.11 lb. per ft, per. up to 3.5 in., 55¢; 0.22 to 0.25 lb per ft, per. up to 5.9 in., 51¢; 0.50 to 0.59 lb per ft, per. up to 8.6 in., 47¢; 1.8 to 2.59 lb per ft, per. up to 9.5 in., 44¢; 4 to 6 lb per ft, per. up to 19.5 in., 44¢; 4 to 6 lb per ft, per. up to 28 in., 43¢. Other alloys higher.

Extruded Round Tubing: M, wall thickness, outside diam, in., 0.049 to 0.057, ¼ to 5/16, \$1.14: 5/16 to %, \$1.02: ½ to 5%, 76¢: 1 to 2 in., 55¢: 0.065 to 0.082, % to 7/16, 85¢: ½ to ½, 62¢: 1 to 2 in., 57¢. 0.165 to 0.219, % to ¾, 54.5¢: 1 to 2 in., 53¢: 3 to 4 in., 49¢. Other alloys higher.

Nickel and Monel

(Base prices, cents per lb, f.o.b. mill)

Sheets, cold-rolled					Nickel 60	Monel 47
Strip, cold-rolled .					66	50
Rods and shapes						
Hot-rolled					56	45
Cold-drawn					56	45
Angles, hot-rolled					56	45
Plates						46
Seamless tubes			Ĩ.		89	80
Shot and blocks						40

Copper, Brass, Bronze

(Cents per pound, freight prepaid on

1	(41 005		
	Extruded Shapes	Rods	Sheets
Copper	36.78		37.18
Copper, hot-rolled		33.03	
Copper, drawn		34.28	
Low brass	38.70*		35.79
Yellow brass	37.11*		34.10
Red brass	38.70*		35.79
Naval brass	34.33	33.08	39.02
Leaded brass		28.63	
Commercial			
bronze	39.39*		36.73
Manganese bronze	37.92	36,42	42.52
Phosphor bronze.			
5 pct			56.05
Muntz metal	33.89	32.64	37.08
Everdur, Herculoy			
Olympic, etc		40.67	41.73
Nickel silver.			
10 pct	46.38	46.74	44.44
Architectural			
* Seamless tubi		****	* 1 * *

Scrap Metals

Brass Mill Scrap

(Cents per pound; add 4t per lb for shipments of 20,000 to 40,000 lb; add 1t for more than 40,000 lb)

Heavy	Turn-
Copper 211/8	20%
Yellow brass 18%	171/2
Red brass 19 %	18 %
Commercial bronze	1714
	1.1 74
Leaded brass rod ends 181/8	

Custom Smelters' Scrap (Cents per pound, carload lots, delivered

to refinery)	
No. 1 copper, wire	16.00
No. 2 copper, wire	15.00
Light copper	14.00
Refinery brass	14.00
* Dry copper content.	

Ingot Makers' Scrap

(Cents per pound, carload lots, to producer)	denverea
No. 1 copper, wire	16.00 15.00
No. 2 copper, wire	14.00
No. 1 composition No. 1 comp. turnings	10.50
Rolled brass	10.00
Radiators Heavy yellow brass	8.50
Mixed old cast	9.50 9.50
Mixed old clips	8.00 9.50
Pots and pans	13.00

Dealers' Scrap (Dealers' buying prices, f.o.b. New York in cents per pound)

the Course be. berne,	
Copper and Brass No. 1 heavy copper and wire. No. 2 heavy copper and wire. Light copper Auto radiators (unsweated). No. 1 composition No. 1 composition turnings Clean red car boxes Cocks and faucets Mixed heavy yellow brass Old rolled brass Brass pipe New soft brass clippings Brass rod ends.	14 34 - 15 13 34 - 14 12 34 - 13 8 14 - 8 14 9 14 - 9 14 8 14 - 8 14 9 14 - 8 14 7 17 8 14 - 8 14 8 14 - 8 14 8 14 - 8 14 8 14 - 8 14 9 12 - 12 14 9 14 - 9 14 9 15 - 9 16 9 16 - 9 16 9 17 - 9 16 9 18 - 9 16 9
No. 1 brass rod turnings	8 10
Alum. pistons and struts Aluminum crankcases 28 aluminum clippings Old sheet and utensils Borings and turnings Wise cast aluminum	$ \begin{array}{r} 5 & - & 5 \frac{1}{2} \\ 6 \frac{3}{4} & - & 7 \\ 1 \frac{1}{2} & - & 12 \\ 6 \frac{3}{4} & - & 7 \\ 4 & - & 4 \frac{1}{2} \\ 6 \frac{3}{4} & - & 7 \end{array} $

Dural Clips (24S)	631 - 7
Zinc	
New zinc clippings	9 - 914
Old zine	63, - 7
Zinc routings	414 - 416
Old die cast scrap	41/4

Nickel and Monel

Nickel silver turnings, mixed	61/2-	7
Lead		
Soft scrap lead	4 1/2 -	

	Magnesii	um Allo	YS	
Segregated	solids			8 - 9
Castings				41/2- 51
	Miscel	laneous		
Block tin .				
No. 1 pewto	er			58 60
No. 1 auto	babbitt.			42 -41

DIOCK LIII
No. 1 pewter 58 -60
No. 1 auto babbitt 42 - 41
Mived common babbitt 1112-12
Solder joints 14 -15
Siphon tops
Small foundry type 1316-14
Monotype 121/2-13
Lino, and stereotype 12 -1216
Electrotype 916-10
New type shell cuttings 1234-13
Hand picked type shells 6 - 612
Lino, and stereo, dross 615-7
Electro. dross 41/2 - 5



The One Machine that Keeps Up with the Baler!

> UNIT 1020A . . . Perfectly balanced . . . All-around stability . . . Handles a 45 inch magnet with ease.



The UNIT 1020A is designed and built for heavy-duty scrap yard operation. Extra long crawlers, wider axles and shoes, plus additional counterweight, provide perfect balance and allaround stability. Tipping strains are absorbed by hook-rollers. Owners using 45 inch magnets find them easy to handle. With full loads, there's no weaving or rocking. It has power and stability without bulk . . . fast on the hoist . . . easy on the swing. To modernize your yard — start with a UNIT 1020A.



UNIT CRANE & SHOVEL CORP.

6517 W. Burnham St. Milwaukee 14, Wis., U. S. A.

Quickly convertible to hook, clamshell or magnet, the UNIT 1020A can handle every scrap yard job.

The UNIT 1020A handles heavy steel, baled or loose scrap with day-in and day-out dependability.





GLINES . CLAMSHELLS . CRANES . TRENCHOES . MAGNE

Downward Price Trend Gathers Momentum

New York

• • • This week the scrap market followed last week's trend with lower quotations for all items. There has been no substantial buying and consumers are showing no interest at lower prices. There are few sales and those that do take place are usually at lower quotations.

THE IRON AGE scrap composite price dropped \$5.00 per gross ton to \$26.17 per gross ton. This price is based on the average prices of No. 1 heavy melting steel at Pittsburgh, Chicago and Philadelphia. This item fell an average of \$6 at Pittsburgh and Chicago and \$5 at Philadelphia. Current quotations for No. 1 heavy melting are: Pittsburgh, \$28 to \$29; Chicago, \$27 to \$28; and Philadelphia, \$24 to \$25.

Prices slipped in all areas with reductions up to \$8 for No. 1 heavy melting at Buffalo. Tonnages moved are small and in some cases prices only represent an appraisal of the market. With the continued lack of buying interest on the part of the consumer, prices can still slip to lower quotations. It is anyone's guess when the market will reach the end of its present decline.

High mill inventories help to keep the price trend down, but will their demands in the future stabilize the price of scrap? Again, present prices may induce new buying and put a prop under today's sagging quotations.

Gloom prevails in all market areas. Some dealers and brokers are not interested in scrap which they have no hope of selling. There are few commitments on future contracts. Some trade sources feel the decline has become a rout and it will take some large tonnage buying on the part of the mills to halt the spiral.

PITTSBURGH — Heavy melting steel scrap prices broke another \$6 a ton this week. The new low prices are based on consumer purchases as well as general appraisal of all factors involved in the market. Shoveling turnings resisted the trend and cast grades remained unchanged. Machine shop and mixed borings and turnings were off \$2, rail crops

were down \$8. Current prices have closed most distant markets to Pittsburgh buyers but the volume of mill buying is still below the rate at which local scrap is being generated by fabricators. Heavy mill buying would call for out-of-district material and, according to trade sources, would make the market rebound.

CHICAGO-The downward spiral turned into a power-dive last week. At press time the market was off \$4 with no indication where it would stop. Sales were light and scattered, but dealer and broker activity was frenzied-in that these traders were trying to ascertain the market. The trade reports today's market is worse than that experienced during the depression. At least in the early 30's they could move scrap-today they can't. Dealers are getting rough treatment. The brokers are taking what little scrap they need direct from industries, as they apparently figure a dealer can stock inventory and industry can't. The dealers, however, aren't buying anything, they don't have to buy, so that the yards in this area are comparatively bare. Railroad specialties prices followed the rest of the list downward. Two months ago these items were leading the downward trend, today they are following.

PHILADELPHIA-No. 1 melting was down another \$5 last week, and No. 2 was down \$3, based on an appraisal of the market. Openhearth and other grades are very hard to move, as no consumer is buying heavily. No. 2 bundles were down \$1.50. Breakable cast was sold at \$28, down by \$3. Other cast grades were \$4 lower. Machine shop turnings were down 50¢, mixed borings were down \$1.50. Shovelings held at last week's price based on a continuing order. Very little scrap is moving while consumers eat into their high priced inventories. Foreign scrap continues to come into Philadelphia and Baltimore in heavy tonnages. With Sparrows Point drawing heavily on imports. Baltimore dealers have nowhere to move their tonnage.

CLEVELAND—Collapse of the scrap market here and in the Valley appeared to be complete this week. The scrap collection system, keyed to a higher production than the market is presently able to support, is in danger of being disrupted. There is no place for scrap to move. Mills are working desperately to get their inventories down and indications are that no substantial tonnages will move until May or June. Prices quoted are nominal, and nothing short of bona fide buyer interest could probe the real bottom of this market.

CINCINNATI—All grades were going begging here this week as the scrap market deteriorated to a new low that practically defies appraisal. Mills and foundries continue out of the market, with the more bearish elements talking about a resumption of buying, on a small scale in June. Brokers have few orders and are

shipping very little. Mills are trying to get their inventories down and rejects are not uncommon.

DETROIT-Experienced scrap men here find it difficult to recall when the bottom has fallen out of the scrap market as completely as it has this week. When prices of major grades dropped as much as \$8. This follows a break of \$3 a week earlier. Brokers were admittedly bidding fantastically low on some offerings and hoping they wouldn't get caught. An offering of alloyed turnings brought no bids whatsoever. Talk here now is that something close to OPA prices may prevail when and if some stability returns to a badly confused situation. A typographical error occurred in last week's quotations. The prices of machinery cast and mixed vard cast should not have appeared. This classification has been replaced by No. 1 cupola cast, covering the entire range of cast grades.

NEW YORK—Brokers report little active buying with price changes still on the downside. There are no large tonnage orders and business is virtually at a standstill. No. 1 heavy melting slipped another \$5 a ton, making the price \$18 to \$20 per gross ton. No. 2 heavy melting had broker offerings as low as \$16.

ST. LOUIS—Scrap prices are off an average of \$5 a ton in this area. First break in previous quotations occurred with the purchase of 25,000 tons of No. 2 heavy melting scrap by a district mill which had offerings even exceeding that tonnage from local brokers. This item was sold at \$24 to \$25. Other mills are still out of the market. In some instances brokers are buying to sell in other markets. This was construed to be another sign of a lower and weaker market. There are said to be still a few orders out on the \$30 basis for No. 2, but these will expire soon.

BOSTON—Prices are still slipping and the market remains dull. No. 1 heavy melting hit a new low at \$20, but there is none moving. In fact, the downslide in scrap appears to have halted whatever little activity there was. Brokers say that scrap is now in the position that cast has been for about 2 months. They will not quote a price and are out of the market.

BIRMINGHAM—For another week there is still no large tonnage buying in this area. But sales of small tonnages at lower prices combined with a general appraisal of all market factors caused quotations to decline an average of about \$5 a ton. Rerolling rails were sold at \$33 to \$35. With farmers engaged in spring planting, receipts of agricultural scrap at dealers' yards have declined.

BUFFALO—The market for openhearth scrap cracked wide open this week when one of the leading consumers bought an estimated 3000 to 4000 tons of No. 2 heavy melting and dealers' bundles at \$22 and \$20, respectively. The prices represented declines of \$13 and \$12 from this interests' March purchase. As a result, No. 1 heavy melting was dragged down to \$25-26 and blast furnace grades lost \$2 a ton.

PITTSBURGH

Per gross ton delivered to	consumer	
No. 1 hvy. melting	\$26.00 to	\$27.00
RR. hvy. melting	27.00 to	28.00
No. 2 hvy. melting	27.00 to	28.00
No. 2 bundles	22.00 to	23.00
RR, scrap rails	34.00 to	35.00
Rails 2 ft and under	36,00 to	37.00
No. 1 comp'd bundles	26.00 to	27.00
Hand bdld, new shts	24,00 to	25.00
Hvy. steel forge turn	26.00 to	27.00
Mach. shop turn	19.00 to	20.00
Shoveling turn	24.00 to	25.00
Mixed bor, and turn,	19.00 to	20,00
Cast iron borings	23.00 to	24.00
No. 1 mach. cast	38.00 to	40.00
Mixed yard cast	30.00 to	32.00
Hvy. breakable cast	30.00 to	31.00
Malleable	39.00 to	40.00
RR. knuck. and cup	34.00 to	35.00
RR. coil springs	34.00 to	35,00
RR. leaf springs	34.00 to	35.00
Rolled steel wheels	35.00 to	36.00
Low phos	29.00 to	29.50

CHICAGO

			-			-	
1	Per	gross.	ton	delix	ered	to	consumer:

ter gross ton delivered to	consume	E.S.
No. 1 hvy. melting	\$27.00 to	\$28.00
No. 2 hvy. melting	25.00 to	26.00
No. 1 bundles	27.00 to	28.00
No. 2 dealers' bundles	21.00 to	23.00
Bundled mach, shop turn	19.00 to	21.00
Galv. bundles	18.00 to	20.00
Mach, shop turn	17.00 to	18.00
Short shov. turn	17.00 to	18.00
Cast iron borings	17.00 to	18.00
Mix. borings and turn	17.00 to	18.00
Low phos. hvy. forge	31.00 to	32.00
Low phos. plates	29,00 to	30.00
No. 1 RR. hvy. melt	29,00 to	30.00
Rerolling rails	38.00 to	38.50
Miscellaneous rails	34.00 to	36.50
Angles & splice bars	35,00 to	36.00
Locomotive tires, cut	35.00 to	37.00
Cut bolster & side frames.	34.00 to	36.00
Standard stl. car axles	50.00 to	51.00
No. 3 steel wheels	38.00 to	38.50
Couplers and knuckles	36,00 to	38.00
Lails, 2 ft and under	39,00 to	40.00
Malleable	32.00 to	33.00
No. 1 mach. cast	30.00 to	32.00
No. 1 agricul. cast	29.00 to	31.00
Heavy breakable cast	27.00 to	28.00
RR. grate bars	24.00 to	25.00
Cast iron brake shoes	25.00 to	26.00
Cast iron car wheels	32.00 to	35,00

CINCINNATI

Per gross ton, f.o.b. cars:

rer gross ton, I.o.b.	cars:	
No. 1 hvy. melting\$	25.00 to	\$26.00
No. 2 hvy. melting	25.00 to	26.00
No. 1 bundles	25.00 to	26.00
No. 2 bundles	23.00 to	24.00
Mach. shop turn.	14.00 to	15.00
Shoveling turn	15.00 to	16.00
	15.00 to	16.00
	15.00 to	16.00
Low phos. 18 in. under	35.00 to	36,00
No. 1 cupola cast	37.00 to	38.00
	31,00 to	32.00
	40.00 to	42.00
Rails random length	30.00 to	32.00
Drop broken	40.00 to	41.00

BOSTON

BUSTON
Brokers' buying prices per gross ton, on cars:
No. 1 hvy. melting \$20.00
No. 2 hvy. melting\$15.00 to 16.00
No. 1 bundles 16.00 to 16.50
No. 2 bundles 13.00 to 14.00
Bushelings 15.00 to 16.00
Shoveling turn 14.25 to 14.50
Machine shop turn 9.00 to 9.50
Mixed bor. and turn 8.50 to 9.00
Cl'n cast chem. bor 22.00 to 27.00
No. 1 machinery cast 25.00 to 28.00
No. 2 machinery cast
Heavy breakable cast 16.00 to 17.00
Stove plate 20 50 to 21 00

DETROIT Per gross ton, brokers' buying prices

f.o.b. cars:	
No. 1 hvy. melting \$20.00 to :	\$21.00
No. 2 hvy. melting 18.00 to	19.00
No. 1 bundles 20.00 to	
New busheling 20.00 to	21.00
Flashings 20.00 to	21.00
Mach. shop turn 13.00 to	14.00
Shoveling turn 14.00 to	15.00
Cast iron borings 14.00 to	15.00
Mixed bor. & turn 13.00 to	14.00
Low phos. plate 20.00 to	21.00
Heavy breakable cast 14.00 to	18.00
Stove plate 17.00 to	18.00
Automotive cast 23.00 to	25.00
No. 1 cupola cast 19.00 to	94.00

Going prices as obtained in the trade by THE IRON AGE, based on representative tannages.

PHILADELPHIA

Per gross ton delivered to consumer:

No. 1 hvy. melting	\$24.00	to	\$25.00
No. 2 hvy. melting	22.00	to	23.00
No. 1 bundles	24.00	to	25.00
No. 2 bundles	20.50	to	21,00
Mach. shop turn	17.50	to	18.50
Shoveling turn.	20.00	to	21.00
Mixed bor, and turn,	15.50	to	16,50
Clean cast chemical bor	23.00	to	26.00
No. 1 machinery cast	30.00	to	31.00
No. 1 mixed yard cast	25.00	to	27.00
Hvy. breakable cast	27.00		28.00
Hvv. axle forge turn	24.00	to	25.00
Low phos, acid openhearth	27.00	to	28.00
Low phos, electric furnace	29.00		30.00
Low phos. bundles	27.00	to	28.00
RR. steel wheels	31.00		32.00
RR. coll springs	31.00	to	32.00
RR. malleable	24.00		28.00
Cast iron carwheels	33.00		34.00
The same of the sa		-	

ST. LOUIS

Per gross ton delivered to consumer

Per gross ton delivered to	consumer:
No. 1 hvy. melting \$	26.00 to \$27.00
No. 2 hvy. melting	24.00 to 25.00
No. 2 bundled sheets	24.00 to 25.00
Mach. shop turn	15.00 to 16.00
Shoveling turnings	15.00 to 16.00
Locomotive tires, uncut	32.00 to 33.00
Mis. std. sec. rails	29.00 to 30.00
Steel angle bars	33.00 to 34.00
Rails 3 ft and under	34.00 to 35.00
RR. steel springs	33.00 to 34.00
Steel car axles	40.00 to 41.00
Brake shoes	30.00 to 31.00
Malleable	30.00 to 31.00
Cast iron car wheels,	34.00 to 35.00
No. 1 machinery cast	35.00 to 36.00
Hvy. breakable cast	26,00 to 27.00
Stove plate	30.00 to 31.00

BIRMINGHAM

Per gross ton delivered to consumer:

No. 1 hvy. melting	\$25.00
No. 2 hvy. melting	25.00
No. 2 bundles	23.00
No. 1 busheling	25.00
Long turnings	18.00
Shoveling turnings	20.00
Cast iron borings	20.00
Bar crops and plate \$26.00 to	28.00
Structural and plate 26.00 to	28.00
No. 1 cupola cast	36.00
Stove plate 31.00 to	32.00
No. 1 RR. hvy. melt 28.50 to	30.00
Steel axles 37.00 to	39.00
Scrap rails 33.00 to	34.00
D Wi mail-	
Rerolling rails 33.00 to	34.00
Angles & splice bars 36.00 to	38.00
Rails 3 ft & under 36.00 to	38,00
Cast iron carwheels 35.00 to	36.00

YOUNGSTOWN

Per grees ton delivered to consume

	rer g	ress t	on	ac	XX	W	D.E	0	α	10	censu	me	r:
No.	1 hvy	. mel	tin	g						. 5	\$28.00	to	\$29.00
No.	2 hvy	. mel	tin	g							26,00	to	27.00
No.	1 bur	dles						×			28,00	to	29.00
No.	2 bur	idles									23.00	to	24,00
													18.00
													21.00
Cas	iron	bori	ngs								20,00	to	21:00
T.OW	nhos					4					20.00	200	21 00

NEW YORK

Brokers' buying	prices	per	gross	ton, or	n care:
No. 1 hvy. mel	ting .		\$18	.00 to	\$20.00
No. 2 hvy. mel	ting .		16	.00 to	17.50
No. 2 bundles					
Mach. shop tu	rn		11	1.00 to	12.00
Mixed bor. & t	urn.		11	.00 to	12.00
Shoveling turn	ings .		18	5.50 to	16.50
Machinery cas	t		26	.00-to	27.00
Mixed yard cas	st		25	00 to	24.00
Heavy breakal	ole cas	t	21	1.00 to	22.00
Charging box	cast.		. 21	.00 to	22.00
Unstrp. motor	blks.		20	0.00 to	21.00
Cl'n cast chem	. bor.		23	.00 to	28.00

BUFFALO

Per gross ton delivered to consumer:

No. 1 hvy. melting	25.00 to	\$26.00
No. 2 hvy. melting	21.00 to	22.00
No. 1 bundles	19.00 to	20.00
No. 2 bundles	19.00 to	20.00
No. 1 busheling	21.00 to	22.00
Mach. shop turn	16.00 to	17.00
Shoveling turn	18.00 to	19.00
Cast iron borings	16.00 to	17.00
Mixed bor. and turn	16.00 to	17.00
Clean auto. cast.	30.00 to	31.00
Mixed yard cast	27.00 to	28.00
Stove plate	27.00 to	28.00
Small indus. malleable	24.00 to	25.00
Low phos. plate	27.00 to	28.00
Scrap rails	34.00 to	35.00
Rails 3 ft & under	38.00 to	39.00
RR. steel wheels	34.00 to	35.00
RR. coil & leaf spgs	34.00 to	35.00
RR. knuckles & coup	34.00 to	35.00

CLEVELAND

Per gross ton delivered to consumer:

No. 1 hvy. melting	\$27.00 to	\$28.00
No. 2 hvy. melting	23.00 to	24.00
No. 1 bundles	27.00 to	28.00
No. 2 bundles	22.00 to	23.00
No. 1 busheling	27.00 to	28.00
Drop forge flashings	27.00 to	28.00
Mach. shop turn.	16.00 to	17.00
Shoveling turn	19.00 to	20.00
Steel axle turn	21.00 to	22.00
Cast iron borings	19.00 to	20.00
Mixed bor. & turn	19.00 to	20.00
Low phos. 2 ft and under	30,00 to	31.00
No. 1 mach. cast	36.00 to	38.00
Malleable	32.00 to	33.00
RR. cast	37.00 to	38.00
Railroad grate bars	28.00 to	29.00
Stove plate	28.00 to	29.00
RR. hvy. melting	33.50 to	34.00
Rails 3 ft and under	40.00 to	41.00
Rails 18 in. and under	41.00 to	42.00

SAN FRANCISCO

er gross ton delivered to consumer

Per gross ton delivered to consume	r:
	\$22.00
	20.00
No. 1 bales	
No. 2 bales	
No. 3 bales	15,00
Mach, shop turn.	12.00
Elec. fur. 1 ft under	30.00
No. 1 cupola cast \$30.00 to	35.00
RR, hvy. melting	22.00
Rails	25.00

LOS ANGELES

Per gross ton delivered to consumer:

No. 1 hvy. melting	\$22.00
No. 2 hvy. melting	20.00
No. 1 bales	18.00
No. 2 bales	18.00
No. 3 bales	15.00
mach. shop turn.	12.00
Elec. fur. 1 ft under	30.00
No. 1 cupola cast\$	30.00 to 35.00
RR, hvy. melting	22.00

SEATTLE

Per gross ton delivered to consumer:

	\$22.00
No. 1 & No. 2 bales	23.00
No. 3 bales	23,00
Elec. fur. 1 ft and under	30.00
No. 1 cupola cast \$30.00 to	32.00
RR. hvv. melting	22.00

HAMILTON, ONT.

Per gross ton delivered to consumer: Cast grades f.o.b. shipping point:

Heavy melting	\$23.00°
No. 1 bundles	23.00°
No. 2 bundles	22.50°
Mechnical bundles	
Mixed steel scrap	
Mixed borings and turnings	
Rails, remelting	
Rails, rerolling	
Bushelings	
Bushelings, new fact, prop'd	
Bushelings, new fact, unprop'd	16 000
Bushelings, new ract, unpropu	10.00
Short steel turnings	17.00
No. 1 cast\$48.00 to	50.00°
No. 2 cast 44.00 to	45.00°
*Ceiling Price.	

For the Purchase or Sale of Iron and Steel Scrap... CONSULT OUR NEAREST OFFICE



Since 1889 Luria Brothers and Company, Incorporated, have maintained their leadership in the industry by keeping abreast of the most modern methods . . . by seeking out the best markets in every part of the world . . . by strategically locating their offices to best serve the interests of their customers.

LURIA BROTHERS & COMPANY, INC.

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LEADERS IN IRON AND STEEL SCRAP SINCE 1889

Steel prices on this page are tions of major producing areas: Youngstown.	the aver Pittsburg	rage of va h, Chicago	rious f.o.l , Gary, C	b. quota- leveland,	
Flat-Rolled Steel:	Apr. 5.	Mar. 29,	Mar. 8,	Apr. 6,	
(cents per pound)	1949	1949	1949	1948	
Hot-rolled sheets	3.26	3.26	3.26	2.80	
Cold-rolled sheets	4.00	4.00	4.00	3.55	
Galvanized sheets (10 ga)	4.40	4.40	4.40	3.95	
Hot-rolled strip	3.265	3.265	3.265	2.80	
Cold-rolled strip		4.063	4.063	3.55	
Plates		3.42	3.42	2.95	
Plates wrought iron	7.85	7.85	7.85	7.25	
Stains C-R strip (No. 302)	33.25	33.25	33.25	30.50	
Tin and Terneplate: (dollars per base box) Tinplate (1.50 lb) cokes Tinplate, electro (0.50 lb) Special coated mfg. ternes	6.70	\$7.75 6.70 6.65	\$7.75 6.70 6.65	\$6.80 6.00 5.90	
Bars and Shapes:					
(cents per pound)					
Merchant bars		3.35	3.37	2.90	
Cold-finished bars	3.995	3.995	3.995	3.55	
Alloy bars	3.75	3.75	3.75	3.30	
Structural shapes	3.25	3.25	3.25	2.80	

Flat-Rolled Steel:	Apr. 5,	Mar. 29,	Mar. 8,	Apr. 6,
(cents per pound)	1949	1949	1949	1948
Hot-rolled sheets	3.26	3.26	3.26	2.80
Cold-rolled sheets	4.00	4.00	4.00	3.55
Galvanized sheets (10 ga)	4.40	4.40	4.40	3.95
Hot-rolled strip	3.265	3.265	3.265	2.80
Cold-rolled strip	4.063	4.063	4.063	3.55
Plates	3.42	3.42	3.42	2.95
Plates wrought iron	7.85	7.85	7.85	7.25
Stains C-R strip (No. 302)	33.25	33.25	33.25	30.50
Tin and Terneplate: (dollars per base box)				
Tinplate (1.50 lb) cokes		\$7.75	\$7.75	\$6.80
Tinplate, electro (0.50 lb)		6.70	6.70	6.00
Special coated mfg. ternes	6.65	6.65	6.65	5.90
Bars and Shapes:				
(cents per pound)				
Merchant bars	3.35	3.35	3.37	2.90
Cold-finished bars	3.995	3.995	3.995	3.55
Alloy bars	3.75	3.75	3.75	3.30
Structural shapes	3.25	3.25	3.25	2.80
Stainless bars (No. 302)	28.50	28.50	28.50	26.00
Wrought iron bars	9.50	9.50	9.50	8.65
Wire: (cents per pound)				
Bright wire	4.15	4.15	4.194	3.55
Rails: (dollars per 100 lb)				
Heavy rails		\$3.20	\$3.20	\$2.75
Light rails	3.55	3.55	3.55	3.10
Semifinished Steel: (dollars per net ton)				
Rerolling billets	\$52.00	\$52.00	\$52.00	\$45.00
Slabs, rerolling	52.00	52.00	52.00	45.00
Forging billets		61.00	61.00	54.00
Allow blooms billata alaba	CON COL	69 00	00 00	00 00

Light rans 3.00	0.00	0.00	0.10
Semifinished Steel:			
(dollars per net ton)			
Rerolling billets\$52.00	\$52.00	\$52.00	\$45.00
Slabs, rerolling 52.00	52.00	52.00	45.00
Forging billets 61.00	61.00	61.00	54.00
Alloy blooms, billets, slabs 63.00	63.00	63.00	66.00
Wire rod and Skelp:			

Wire rods 3.40 3.463 3.619 2.80 Skelp 3.25 3.25 3.25 2.90	(cents per pound)				
Skelp 3.25 3.25 2.90	Wire rods	3.40		~~~~	ACR 8 CO 10
	Skelp	3.25	3.25	3.25	2.90

Composite Prices.	C	0	m	p	0	S	i	t	e	P	r	i	C	e	S	•
-------------------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

FINISHED STEEL (Ba	ase Price)	
Apr. 5, 19493.75197¢	per lb	
One week ago3.75197¢	per lb	
One month ago3.75701¢	per lb	
One year ago 3.28244¢	per lb	

	HI	GH		LO	W
1949	3.76049¢	Jan.	1	3.75197¢	Mar. 29
1948	3.75700¢	July	27	3.22566¢	Jan. 1
1947	3.19541¢	Oct.	7	2.87118¢	Jan. 7
1946	2.83599¢	Dec.	31	2.54490¢	Jan. 1
1945	2.44104¢	Oct.	2	2.54490¢	Jan. 2
1944	2.30837¢	Sept.	5	2.21189¢	Oct. 5
1943	2.29	176¢		2.291	76¢
1942	2.28	249¢		2.282	49¢
1941	2.43	078¢		2.430	78¢
1940	2.30467¢	Jan.	2	2.24107¢	Apr. 16
1939	2.35367¢	Jan.	3	2.26689¢	May 16
1938	2.58414¢	Jan.	4	2.27207¢	Oct. 18
1937	2.58414¢	Mar.	9	2.32263¢	Jan. 4
1936	2.32263¢	Dec.	28	2.05200¢	Mar. 10
1935	2.07642¢	Oct.	1	2.06492¢	Jan. 8
1934	2.15367¢	Apr.	24	1.95757¢	Jan. 2
1933	1.95578¢	Oct.	3	1.75836¢	May 2
1932	1.89196¢	July	5	1.83901¢	Mar. 1
1931	1.99626¢	Jan.	13	1.86586¢	Dec. 29
1929	2.31773¢	May	28	2.26498¢	Oct. 29
-1	Weighted	index	bas	ed on ste	el bars,

shapes, plates, wire, ralls, black pipe, hot and cold-rolled sheets and strip, representing major portion of finished steel shipments. Index recapitulated in Aug. 28, 1941, issue.

Pig Iron:	Apr. 5,	Mar. 29,	Mar. 8,	Apr. 6,
(per gross ton)	1949	1949	1949	1948
No. 2, foundry, Phila	\$51.56	\$51.56	\$51.56	\$44.61
No. 2. Valley furnace		46.50	46.50	39.50
No. 2. Southern Cin'ti*		49.46	49.46	43.28
No. 2. Birmingham	43.38	43.38	43.38	37.38
No. 2, foundry, Chicago		46.00	46.00	39.00
Basic del'd Philadelphia*		50.76	50.76	44.11
Basic, Valley furnace		46.00	46.00	39.00
Malleable, Chicagot		46.50	46.50	39.50
Malleable, Valley		46.50	46.50	39.50
Charcoal, Chicago		73.78	73.78	62.46
Ferromanganeset		161.40	161.40	145.00

† The switching charge for delivery to foundries in the Chicago district is \$1 per ton.

‡ Average of U. S. prices quoted on Ferroalloy page.

Does not include interim increase on total freight charges, effective Jan. 11, 1949.

630 EU	\$26.75	\$40.25
		41.50
		39.00
		35.50
34.50	41.50	45.25
39.00	45.50	64.00
34.50	42.00	65.50
38.00	41.50	70.50
	$39.00 \\ 34.50$	29,50 37,50 31,50 34,50 28,50 33,00 34,50 41,50 39,00 45,50 34,50 42,00

Coke, Connellsville: (per net ton at oven)
Furnace coke, prompt...\$14.50 \$14.50 \$12.50
Foundry coke, prompt... 16.50 16.50 14.00

a human	-1		
23.375	23.50	23.50	21.50
23.625			21.625 94.00
16.00	16.00	17.50	12.00
17.00			17.30 15.00
42.93	42.93	42.93	36.56
		20.50 38.50	20.50 33.00
	23.375 23.625 \$1.03 16.00 15.80 17.00	23.625 23.625 \$1.03 \$1.03 16.00 16.00 15.80 16.85 17.00 17.00 42.93 42.93 20.50 20.50	23.375 23.50 23.625 23.625 23.625 23.625 \$1.03 \$1.03 \$1.03 \$16.00 \$1.50 \$1.50 \$15.80 \$16.85 \$21.30 \$17.00 \$17.00 \$17.00 \$42.93 \$42.93 \$20.50 \$20.50 \$20.50

Starting with the issue of Apr. 22, 1943, the weighted finished steel index was revised for the years 1941, 1942, and 1943. See explanation of the change on p. 90 of the Apr. 22, 1943, issue. Index revised to a quarterly basis as of Nov. 16, 1944; for details see p. 98 of that issue. The finished steel composite price for the current quarter is an estimate based on finished steel shipments for the previous quarter. This figure will be revised when shipments for this quarter are compiled.

PIG IRON		SCR	AP	STEE	L
\$46.74 per gross		\$26.17	per	gross	ton
\$46.74 per gross		\$31.17	per	gross	ton
\$46.74 per gross		\$36.25	per	gross	ton
\$40.11 per gross	ton	\$40.25	per	gross	ton

HIGH	LOW
\$46.82 Jan. 4	\$46.74 Jan. 25
46.91 Oct. 12	39.58 Jan. 6
37.98 Dec. 30	30.14 Jan. 7
30.14 Dec. 10	25.37 Jan. 1
25.37 Oct. 23	23.61 Jan. 2
\$23.61	\$23.61
23.61	23.61
23.61	23.61
\$23.61 Mar. 20	\$23.45 Jan. 2
23.45 Dec. 23	22.61 Jan. 2
22.61 Sept. 19	20.61 Sept. 12
23.25 June 21	19.61 July 6
23.25 Mar. 9	20.25 Feb. 16
19.74 Nov. 24	18.73 Aug. 11
18.84 Nov. 5	17.83 May 14
17.90 May 1	16.90 Jan. 27
16.90 Dec. 5	13.56 Jan. 3
14.81 Jan. 5	13.56 Dec. 6
	14.79 Dec. 15
	18.21 Dec. 17
Based on averag	es for basic iron
t Valley furnaces t Chicago, Phila	delphia, Buffalo,
Valley and Birming	giiaii.

HIGH	LOW
\$43.00 Jan. 1	\$26.17 Apr. 5
43.16 July 27	39.75 Mar. 9
42.58 Oct. 28	29.50 May 20
31.17 Dec. 24	19.17 Jan. 1
19.17 Jan. 2	18.92 May 22
19.17 Jan. 11	15.76 Oct. 24
\$19.17	\$19.17
\$19.17 19.17	19.17
\$22.00 Jan. 7	\$19.17 Apr. 10
21.83 Dec. 30	16.04 Apr. 9
22.50 Oct. 3	14.08 May 16
15.00 Nov. 22	11.00 June 7
21.92 Mar. 30	12.67 June 9
17.75 Dec. 21	12.67 June 8
13.42 Dec. 10	10.33 Apr. 29
13.00 Mar. 13	9.50 Sept. 25
12.25 Aug. 8	6.75 Jan. 3
8.50 Jan. 12	6.43 July 5
11.33 Jan. 6	
17.58 Jan. 29	
Based on No. 1	heavy melting
steel scrap quotation at Pittsburgh, Philac	ns to consumers
cago.	delbuig gud Cui-
-	

Perpetual Motion

THERE IS NO SUCH THING AS PERPETUAL MOTION, BUT THE WHEEL REPRESENTING THE STEEL CYCLE SEEMS THE CLOSEST THING TO IT.

WHAT KEEPS IT GOING?

The answer is the established iron and steel scrap industry, which exists primarily for this purpose. It comprises about 4,000 dealers, large and small, with about 200,000 persons gainfully employed in collecting, processing and shipping scrap. It represents a huge investment in capital, fortified by enterprise and "know-how" to get our daily accumulation of scrap.

to get our dairy.

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SCHIAVONE-BONOMO CORP.

FOOT OF JERSEY AVE., JERSEY CITY, N. J., U. S. A.

Cable Address: "SCHIABO," NEW YORK

HARRISON, N. J. . NEWARK, N. J. . BROOKLYN, N. Y. . BRONX, N. Y. . STAMFORD, CONN.

Iron and Steel Prices . . .

Steel prices shown here are f.o.b. producing points in cents per pound unless otherwise indicated. Extras apply. (1) Commercial quality sheet grade; prices, 0.25¢ above base. (2) Commercial quality grade. (3) Widths up to 12-in. inclusive. (4) 0.25 carbon and less. (5) Cokes, 1.25 lb, deduct 25¢ per base box. (6) 18 gage and heavier. (7) For straight length material only from producers to fabricators. (8) Also shafting. For quantities of 40,000 lb and over. (9) Carload lot in manufacturing trade. (10) Hollowware enameling, gages 29 to 31 only. (11) Produced to dimensional tolerances in AISI Manual Sec. 6. (12) Slab prices subject to negotiation in most cases. (13) San Francisco only. (14) Los Angeles only. (15) San Francisco and Los Angeles only. (16) Seattle only. (17) Seattle and Los Angeles only.

PRODUCTS	-			Base p	prices at p	roducing p	ooints appl	y to the s	zes and g	rades prod	luced in the	se areas	-		-
PRODUCTS	Pitts- burgh	Chicago	Gary	Cleve- land	Birm- ingham	Buffalo	Youngs- town	Spar- rows Point	Granite City	Middle- town, Ohio		Detroit	Johns- town	Seattle, S. Frisco, LosAngeles	Fonta
INGOTS Carbon forging	\$50.00														
Alloy	\$51.00						(per n	et ton)							
BILLETS, BLOOMS, SLABS Carbon, rerolling ¹²	\$52.00				\$52.00	\$52.00	(per net to	n)				\$52.00		
Carbon forging billets	\$61.00	\$61.00	\$61.00	\$61.00	\$61.00	\$61.00	(per n	et ton)	***			-	\$61.00		
Alloy	\$63.00	\$63.00				\$63.00	(Beth	lehem, C	Inton, Mar	ssillon					
PIPE SKELP	3.25					_	3.25				Warren = 3.25				
WIRE RODS	3.40	3.40		3.40	3.40		3.40	3.50			Worcester 3.70		3.40	4.05 ¹³ 4.10 ¹⁴	
SHEETS Hot-rolled ⁶	3.25 to 3.30	3.25	3.25	3.25- 3.30	3.25	3.25	3.25	3.25		Warren	Ashland	3.45		3.9515	4.1
Cold-rolled1	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.20	4.00	Warren 4.00	4.20		Pittsburg, Cal. 4.95	
Galvanized (10 gage)	4.40	4.40	4.40		4.40			4.40	Canton =4.40	4.40	Ashland =4.40			5.1515	
Enameling (12 gage)	4.40	4.40	4.40	4.40			4.40		4.60	4.40	-1.40	4.70			
Long ternes ² (10 gage)	4.80		4.80							4.80	-				
STRIP Hot-rolled ³	3.25 to 3.30	3.25 to 3.30	3.25	3.25 to 3.30	3.25	3.25	3.25	3.25		3.25	Warren = 3.25	3.45		4.00 to 4.25	4.6
Cold-rolled ⁴	4.00	4.25		4.00		4.00	4.00	4.00			aven 4.50 4.00 to 4.25	4.20 to 4.50			5.5
TINPLATE Cokes, 1.50 lb.5 base box	\$7.75	\$7.75	\$7.75		\$7.85			\$7.85	\$7.95	Warre	en, Ohio \$7.75			Pittsburg, Cal. = \$8.50	
Electrolytic 0.25, 0.50, 0.75 lb, box				Dedu	et \$1.30,	\$1.05 and	75¢ respe	ctively fro	m 1.50 lb.		box price				
TERNES MFG., special coated					[Deduct \$1.	10 from 1.	50 lb. cok	e base bo	x price					
BLACKPLATE CANMAKING 55 to 128 fb.	-			De	duct \$2.0	0 from 1.5	0 lb. coke	base box	price						
BLACKPLATE, h.e., 29 ga.10	5.30	5.30	5.30					5.40			en, Ohio				
BARS Carbon Steel	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35		3.35	Canton =3.35	3.55	3.35	4.05 to 4.10	4.1
Reinforcing (billet)?	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35		-	Canton = 3.35		3.35	4.05 to 4.10	4.0
Cold-finished ⁸	3.95 to	4.00	4.00	4.00		4.00	4.00		-		-3,33	4.30		4.10	
Alloy, hot-rolled	3.75	3.75	3.75			3.75	3.75	Bethle	hem, Cant	on, Massi	lion = 3.75	4.05	3.75	4.8014	4.
Alloy cold-drawn	4.65	4.65	4.65	4.65		4.65	4.65	M	assillon =	4.65	Worcester 4.95				
PLATE Carbon steel ¹¹	3.40 to 3.60	3.40	3.40	3.40 to 3.60	3.40	3.45 hohocker	3.40 =3.95			3.75, Clay 0, Harrisb	mont = 3.95	3.65	3.45	4.3016	5.
Floor plates	4.55	4.55		4.55	Cons	HOHOCKE	3.55	-	shohocken		urg - 4.55				
Alloy	4.40	4.40			-				Coatesv	ille = 5.10	-	-			
SHAPES, Structural	3.25	3.25	3.25		3.25	3.30	Be	thlehem	3.30, Ger	neva, Utah	=3.25		3.30	3.85 to 4.30	3.
MANUFACTURERS' WIRE9 Bright	4.15	4.15		4.15	4.15		4,15	4.25	Duluth=	4.15, Wor	cester = 4.45	3	4.15		-
	5.20	5.20	-	5.20		-	-	5.30	V	Vorcester =	=5.50		5.20	Duluth = 5.20-6.15	
Spring (high carbon)			1				1		Mew M	laven, ire	nton = 5.50			3.20-0.10	1

STAINLESS STEELS

Base prices, in cents per pound, f.o.b. producing point

		1	Straight Chromium						
Product	301	302	303	304	316	347	410	416	430
Ingots, rerolling	12.75	13.50	15.00	15.50	22.75	20 00	11.25	13.75	11.50
Slabe, billets, reroiling	17.00	18.25	20.25	19.25	30.25	26.75	15.00	18.50	15.25
Forging discs, die blocks, rings	30.50	30.50	33.00	32.00	49.00	41.00	24.50	25.00	25.00
Blilets, forging	24.25- 26.50	24.25- 26.50	26.25- 28.75	25.50- 27.75	39.00- 42.75	32.75- 35.75	19.50- 21.50	20.00- 21.75	20.00-
Bars, wire, structurals	28.50	28.50	31.00	30.00	46.00	38.50	23.00	23.50	23.50
Plates	32.00	32.00	34.00	34.00	50.50	44.00	26.00	28.50	26 50
Sheets	37.50- 40.75	37.50- 40.75	39.50- 43.00	39.50- 43.00	53.00- 57.25	50.00- 54.00	33.00	33.50	35.50
Strip, hot-rolled	24.25	25.75	30.00	27.75	46.00	38.75	21.25	28.00	21.75
Strip, cold-rolled	30.50- 30.75	33.00- 33.50	36.50- 39.50	35.00- 35.75	55.00- 57.25	48.50- 50.00	27.00	33.50	27.50

ELECTRODES

Cents per lb. f.o.b. plant, threaded electrodes with nipples, unboxed

Diameter in in.	Length in in.	
Graphite		
17, 18, 20	60, 72	16.00¢
8 to 16	48, 60, 72	16.50€
7	48, 60	17.75
6	48, 60	19.00¢
4, 5	40	19.50¢
3	40	20.50¢
21/2	24, 30	21.00
2	24, 30	23.00
Carbon		
40	100, 110	7.504
35	65, 110	7.50€
30	65, 84, 110	7.50
24	72 to 104	7.504
17 to 20	84, 90	7.500
14	60, 72	8.00¢
10, 12	60	8.25
8	60	8.50

TOOL STEEL

		F.o.b.	mill		
w	Cr	17	Mo	Co	Base per lb
18	4	1		_	90.5€
18	4	1	_	5	\$1.42
18	4	2	_		\$1.025
1.5	4	1.5	8	-	65¢
6	4	2	6	_	69.5¢
High-	earbon-cl	aromiu	n		52¢
Oil ha	rdened	mangar	lese .		29¢
Specia	l carbon	1			26.5¢
Extra	carbon	*****			22¢
Regula	ar carbo	n			19¢
187	ashama .	nalaaa .		dame !	of Mila

Warehouse prices on and east of Mississippi are 21/4¢ per lb higher. West of Mississippi. 41/2¢ higher.

5

00

00

75

ELECTRICAL SHEETS

24 gage, HR cut lengths, f.o.b. mill

										Cer	its	per lo
Armature .									*	5.45	to	6.05
Electrical .	× ,									5.95	to	6.55
Motor							×		*	6.70	to	6.95
Dynamo										7.50	to	7.75
Transformer	7	2		,			*			8.05	to	10.05
Transformer	6	5								8.60	to	10.60
Transformer	5	8								9.30	to	11.30
Transformer	63	2			*	×	*		ĸ	10.10	to	11.35

RAILS, TRACK SUPPLIES

F.o.b. mill

No.	1 qu	ali	ty,		p	eı	•	1	0	0	1	b							0	\$	3.2	0
Joint 1	bars,	10	0	11	b				4		4				D	0					4.2	5
Light	rails	(f	ro	m.		b	il	le	t.	8)							*			3.5	5
																1	3	as	36	1	Pri	ce
																C	6	72	ŧ8	1 1	per	11
l'rack	spik	es		*																	5.	3
Axles																					5.	21
Screw	spik	es								× -				*							8.	00
Tie pla	ates							0									0				4.	0
Tie pl	ates,	P	itt	si	bı	11	g	h		-	C	a	11:	f.							4.	2(
Track	bolts	8, 1	un	t	re	a	8	ed	1				0		0						8.	2
Track road	bolt																					5(
*Sea	ttle.	ad	d	3	0																	

C-R SPRING STEEL

	Base per po											
0.26 to	0.40 carbon			0								
0.41 to	0.60 carbon					*	*	*		*		5.50€
0.61 to	0.80 carbon						0					6.10€
	1.05 carbon											8.05€
	1.35 carbon				0			0		0		10.35€
Worces	ster, add 0.30	¢.										

CLAD STEEL

Base prices, cents pe	r pound Plate	Sheet
No. 304, 20 pct, f.o.b.		-
Coatesville, Pa	*26.50	
Washington, Pa		•22.50
Claymont, Del	*26.50	
Conshohocken, Pa		*22.50
Nickel-clad		
10_pct f.o.b. Coatesville,		
Pa	27.50	
Inconel-clad		
10 pct, f.o.b. Coatesville.	36.00	
Monel-clad	00.00	
10 pct, f.o.b. Coatesville. Aluminized steel sheets	29.00	
Hot dip, 20 gage, f.o.b.		
Butler, Pa		9.25

 Includes annealing and pickling, or sandblasting.

MERCHANT WIRE PRODUCTS

To the dealer, f.o.b. mill

	Base	Column Pittsburg. Calif.
Standard & coated nails*	103	123
Galvanized nails*	103	123
Woven wire fencet	109	132
	114	
Single loop bale ties	106	130
Galvanized barbed wire**		143
Twisted barbless wire	123	

*Pgh., Chi., Duluth; Worcester, 6 columns higher. † 15½ gage and heavier. *On 80 rod spools, in carloads. †† Duluth only.

	Base per 100 lb	Pittsburg. Calif.
	wiret \$4.80	\$5.75
	fencing: 5.25	6.20
Cut nails.		

‡ Add 30¢ at Worcester; 10¢ at Sparrows Pt.

‡‡ Less 20¢ to jobbers.

HIGH STRENGTH, LOW ALLOY STEELS

Mill base prices, cents per pound

Steel	Aldecor	Corten	Double Strength No. 1	Dyn- alloy	HI Steel	Mayari R	Otis- coley	Yoloy	NAX High Tensile
Producer	Republic	Carnegie- Illinois, Republic	Republic	Alan Wood	Inland	Bethle- hem	Jones & Laughlin	Youngs- town Sheet & Tube	Great Lakes Steel
Plates	5.20	5.20	5.20	5.30	5.20	5.30	5.20	5.20	5.85
Sheets Hot-rolled Cold-rolled Galvanized	4.95 6.05	4.95 6.05 6.75	4.95 6.05	5.25	4.95 6.05	4.95 6.05 6.75	4.95 6.05	4.95 6.05	5.25 6.35
Strip Hot-rolled Cold-rolled	4.95	4.95	4.95 6.05		4.95	4.95 6.05	4.95 6.05	4,95 6.05	5.25 6.35
Shapes		4.95			4.95	5.05	4.95	4.95	****
Beams	*****	4.95				****		*****	****
Bars Hot-rolled	5.10	5.10	5.10	****	5.10	5.10	5.10	5.10	5.40
Bar shapes		5.10			5.10	5.10	5.10	5.10	

PIPE AND TUBING

Base discounts, f.o.b. mills, Base price, \$200.00 per net ton.

STANDARD, THREADED AND COUPLED

	Steel, buttweld 1/2-in. 3/4-in. 1-in. 1 1/4-in. 1 1/2-in. 2 2-in. 2 1 to 3-in.	50	to to to to to	41 44 46 ½ 47 ½	21 ½ 25 ½ 28 ½ 29 ½ 29 ½ 30	to 19 ½ to 23 ½ to 26 ½ to 27 to 27 ½ to 28 to 28 ½	
	Steel, lapweld 2-in. 2½ to 3-in. 3½ to 6-in.	43 1/2	to	39 ½ 42 ½ 42 ½	23	to 19 to 22 to 22	
,	Steel, seamless 2-in. 2½ to 3-in 3½ to 6-in	41 1/2	to:	27 32 1/2 38 1/4	18 21 23	to 6½ to 12 to 18	
	Wrought Iron, b ½-in. ¾-in. 1 & 1 ¼-in. 2-in. 3-in.		+++	20 1/2 10 1/2 4 1/2 1 1/2		+51 +40 +31 +27½ +27	
	Wrought Iron, la 2-in		+	7 ½ 5 list 2		+35 +30 ½ +24 ½ +26	

EXTRA STRONG, PLAIN ENDS

Steel, buttweld					
½-in. ¾-in. 1-in. 1¼-in. 1½-in. 2-in. 2-in. 2-in.	49	to to to to	44 46 46 ½ 47 ½	26 29 29 ½ 30 30 ½	to 20 to 24 to 27 to 27½ to 28 to 29½ to 29
Steel, lapweld					
2-in	39 ½ 44 ½ 48	to	421/2	25	to 19 to 23 to 26 1/2
Steel, seamless 2-in. 2½ to 3-in. 3½ to 6-in.	37½ 41½	to	36 1/2	18 22	to 13 to 18 25 ½
Wrought Iron, b	uttwe	ld			
½-in. ¾-in. 1 to 2-in.		++	16 9½ 1½		$^{+45}_{+38}_{+27}$
Wrought Iron, la	hlawald				
2-in. 2½ to 4-in. 4½ to 6-in	, olo	+	4 1/2 5 1		+31½ +20 +24½

BOILER TUBES

| Seamless steel and electric welded commercial boiler tubes and locomotive tubes, minimum wall. Prices per 100 ft at mill in carload lots, cut length 4 to 24 ft inclusive. OD Gage Seamless Electric Weld in in. BWG H.R. C.R. H.R. C.D. 2 13 19.18 22.56 18.60 21.89 21/4 12 25.79 30.33 25.02 29.41 3 12 28.68 33.76 27.82 32.74 3 12 28.68 33.76 27.82 32.74 4 10 44.51 52.35 43.17 50.78

CAST IRON WATER PIPE

to 24-in., del'd Chicago \$106	ton
to 24-in., del'd N. Y 103.50 to 108	.40
to 24-in., Birmingham 93	.50
in. and larger, f.o.b. cars, San	
Francisco. Los Angeles, for all	
rail shipment; rail and water	
shipment less 120	.30
Class "A" and gas pipe, \$5 extra; 4-	in.
nine is \$5 a ton above 6-in	

BOLTS, NUTS, RIVETS, SET SCREWS

Consumer Prices

(Bolts and nuts f.o.b. mill Pittsburgh, Cleveland, Birmingham or Chicago)

Base discount less case lots

Machine	 C	D-IA-

Pot Off	List
1/2 in. & smaller x 6 in. & shorter	35
9/16 & % in. x 6 in. & shorter	37
14 in. & larger x 6 in. & shorter	34
All diam, longer than 6 in	30
Lag, all diam over 6 in. longer	35
Lag, all diam x 6 in. & shorter	37
Plow bolts	41

Nuts, Cold Punched or Hot Pressed (Hexagon or Square)

plow hol	ts. ad	dition	an	ul	8	1	C	V	N.	a.	n	C	e	-	0	Ē	1	15	De
On al	bove	bolts		BJ	n	d		1	31	u	L	l,		4	33	1	36	g	tin
1% in. 8	and la	rger						0						0			e	0	2
11/8 to 1																			
9/16 to 1																			3
1/2 in. ar																			3

for full container quantities. There is an additional 5 pct allowance for carload shipments.

Semifinished Hexagon Nuts

	022	DAL
7/16 in. and smaller	38	41
½ in. and smaller	38	39
1/2 in. through 1 in	37	39
9/16 in. through 1 in		37
in. through 1½ in	35	37
In full case lots, 15 pct	.28	****
	additional	dis
count.		

Stove Bolts Packages, nuts separate \$61.75 In bulk 70.00

Large	Rivets		(24.		in	١.	•	27	86		larger)
	Pittsburgh,		76	le	ar	ıd		-	C	h	1-	00 19
	o, Birmingha											\$6.75
F.o.b.	Lebanon, Pa	io 0	•	0 1	0		0					6.75

(7/16 in. and smaller) Pot off List F.o.b. Pittsburgh, Cleveland, Chicago, Birmingham

(In packages)	Pct Off Lis
Hexagon head cap screws,	
fine thread, up to and inc	. 1 in. x
6 in., SAE 1020, bright	40
% to 1 in. x 6 in., SAE	(1035),
heat treated	31
Milled studs	
Flat head cap screws, listed	
Fillister head cap, listed size	B 21

FLUORSPAR

Washed grave	fluorspar	, f.c	b. cars,
Effective CaF. Co	ntent:		price per net ton
70% or more			

LAKE SUPERIOR ORES

(51.50% Fe, Natural Content, Delivered Lower Lake Ports)

011																		To
Old rang	ze,	bes	sen	ner						0			0	۰	0	0		1.0
Old rang	ge.	no	nbe	88	en	ne	T											7.4
Mesabi,	be	sse	mer					×										7.3
Mesabi.	no	nbe	sse	me	T													7.2
High ph	OST	hor	Rus															7.2
After	De	ec.	31.	1	9	48			ix	10	r	es	2.5	3€	8		70	de
creases																		
handling				0.1	nd	1	-0	9	-		-	h	-	-	-	080		a h

METAL POWDERS

Per pound, 1.o.b. shipping	point, in ton
lots, for minus 100 mesh.	
Swedish sponge iron c.i.f. New York, ocean bags	7.9¢ to 9.0¢
Domestic sponge iron, 98+%	1.04 00 0.04
Fe, carload lots	9.0¢ to 15.0¢
Electrolytic iron, annealed,	
99.5+% Fe	31.5¢ to 39.5¢
Electrolytic iron, unannealed,	40
minus 325 mesh, 99+% Fe	48.5€
Hydrogen reduced iron, minus 300 mesh, 98+% Fe	63.0¢ to 80.0¢
Carbonyl iron, size 5 to 10	00.00 00.00
0.000 0.000 1 33-	90.0¢ to \$1.75
Aluminum	31.00€
Brass, 10 ton lots	51.17¢
Brass, 10 ton lots	27.25 to 37.25¢
Copper, electrolytic	33.020
Copper, reduced	\$2.40
Chromium, electrolytic, 99%	
min	\$3.50
Lead	24.00¢
Manganese	
Molybdenum, 99% Nickel, unannealed	\$2.65 67.00¢
Nickel, spherical, minus 30	01.00¢
mesh, unannealed	68.00€
Silicon	34.00€
Solder powder 8.5¢ p	lus metal cost
Stainless steel, 302 Tin Tungsten, 99%	75.0
Tin	\$1.156
Zinc, 10 ton lots	17 00 to 20 75¢
Zime, to ton lots	11.00 00 20.104

COKE

Furnace, beehive (f.o.b. oven) Net To	n
Connellsville, Pa\$14.00 to \$15.0	0
Foundry, beehive (f.o.b. oven)	
Connellsville, Pa \$16.00 to \$17.0	0
Foundry, Byproduct	
Buffalo, del'd\$22.9	5
Chicago, f.o.b 20.4	õ
Detroit, f.o.b	ŏ
New England, del'd 23.3	š
Seaboard, N. J., f.o.b	
Swedeland, Pa., f.o.b 21.0	
Painesville, Ohio, f.o.b 20.9	
Erie, del'd\$21.50 to 23.5	0
Cleveland, del'd	6
Cincinnati, del'd 21.5	0
St. Paul, f.o.b	0
St. Louis, del'd 20.9	Ř
Birmingham, del'd 18.6	ĕ
Diriningham, dord 20.0	100

REFRACTORIES

(F.o.b. Works)

(1.0.5. 170720)
Fire Clay Brick
Carloads, Per 1000
First quality, Pa., Md., Ky., Mo.,
Ill. (except Salina, Pa., add \$5)\$80.00
No. 1 Ohio
Sec. quality, Pa., Md., Ky., Mo., Ill., 74.00
No. 2 Ohio 66.00
No. 2 Ohio
cept Salina, Pa., add \$1.50) 11.50
Silica Brick
Mt. Union, Pa., Ensley, Ala\$80.00
Childs, Pa 84.00
Hays, Pa 85.00
Chicago District
Western, Utah and Calif 95.00
Super Duty, Hays, Pa., Athens, Tex. 85.00
Sinca cement, net ton, bulk, East-
ern (except Hays, Pa.)\$13.75 to 14.00
Silica cement, net ton, bulk, Hays,
Pa 16.00
Pa. Silica cement, net ton, bulk, Ensley,
Ala 15.00
Ala. Silica cement, net ton, bulk, Chi-
cago District 14.76
Silica cement, net ton, bulk, Utah
and Calif 21.00
Chrome Brick
Per Net Ton
Standard chemically bonded, Balt.,
Chester
Magnesite Brick
Standard, Balt. and Chester\$91.00
Chemically bonded, Balt, and
Chester 80.00
Chester
Grain Magnesite
Std. 34-in, grains
Std. %-in. grains Domestic, f.o.b. Balt. and Chester,
in bulk, fines removed\$56.50
Domestic fob Chewelah Wash.
Domestic, f.o.b. Chewelah, Wash., in bulk with fines \$30.50 to \$1.00
in sacks with fines 35.00 to 35.50
Dead Bossel Delegate

Dead Burned Dolomite Pool. producing points in Pennsylvania, West Virginia and Ohlo, per net ton, bulk. Midwest. add 10e; Missouri Valley, add 20e ..\$12.25

		SHEETS		STI	RIP	PLATES	SHAPES	BA	RS		ALLOY	BARS	
CITIES	Hot- Rolled	Cold- Rolled (15 gage)	Galvanized (10 gage)	Hot- Rolled	Cold- Rolled		Standard Structural	Hot- Rolled	Cold- Finished	Hot- Rolled, A 4615 As-rolled	Hot- Rolled, A 4140-50 Ann.	Cold- Drawn. A 4615 As-rolled	Cold- Drawn, A 4140-50 Ann.
Baltimore	5.31	6.21- 6.41	6.95- 7.11	5.37	****	5.56	5.36	5.42	6.16	****	10.10		****
Birmingham	5.05		6.45	5.05	6.68	5.25	5.00	5.00	6.68	****			****
Boston	5.55	6.45-	7.71- 7.85	5.65- 5.95	6.75	5.80	5.42	5,52	6.27	9.64- 9.82	10.04- 10.07	11.23- 11.27	11.47- 11.52
Buffalo	4.85	5.00- 5.75	7.26-	5.29- 5.65	8.35- 7.27	5.35	5.10	5.05- 5.15	5.90	9.70- 9.73	9.95-	11.15- 11.18	11.40- 11.43
Chicago	4.85	5.75	7.10	4.85	6.68	5.10	.90	4.90	5.70	9.35- 9.50	9.60-	10.80- 10.90	11.05- 11.15
Cincinnati	5.16- 5.28°	6.13°- 6.18	7.53	5.28°- 5.55		5.53°- 5.63	5.40°- 5.48	5.33*- 5.55	6.09°- 6.10	9.74	9.99	11.19	11.44
Cleveland	4.98- 5.16	5.75- 6.06	7.20-	5.03- 5.15	****	5.37- 5.54	5.16-	5.17- 5.34	5.90- 5.97	9.49- 9.66	9.74-	10.95- 11.07	11.19- 11.32
Detroit	5.28- 5.32	6.07- 6.18	7.53- 7.58	5.28- 5.47	6.27- 6.58	5.53- 5.57	5.40	5.33- 5.55	6.01- 6.10	9.69- 9.82	9.94-	11.11- 11.14	11.35- 11.39
Houston	6.50- 6.70		8.50	7.00		6.70	6.55	6.65	7.60	10.30	10.25	11.45	11.70
ndianapolis	5.15	6.05	7.39	5.15	6.25	5.40	5.20	5.35	6.50	****		****	****
os Angeles	6.45-	7.90- 8.05	8.75- 8.90	6.65- 6.80	9.355	6.15	5.95- 6.10	6.10-	7.95 ¹⁴ - 9.35	10.90- 11.60	10.85- 11.55	12.40- 12.95	12.65- 13.20
Memphis	5.75	6.60	****	5.95	6.80	5.95	5.75	5.75	6.50	****	****	****	****
Wilwaukee	5.03	5.93	7.28	5.38	6.86	5.28	5.08	5.08	5.87- 5.88	9.53	9.78	10.98	11.23
New Orleans	5.95°	6.75*	****	6.15*	****	6.15°	5.95*	5.95°	6.65°	****		****	****
New York	5.40-	6.46	7.71- 7.86	5.62- 5.98	****	5.70- 6.00	5.33- 5.61	5.57- 5.80	6.41-	9.73- 9.93	9.98-	11.18- 11.38	11.43- 11.63
Norfolk	5.80			6.05		6.05	6.05	6.05	7.05				
Omaha	5.92		9.18	5.92	****	6.17	5.97	5.97	6.77	****	****	****	****
Philadelphia	5.32	6.49	7.48-	5.60	6.69	5.53	5.25	5.55	6.34	9.64-	9.89	10.94	11.19
Pittsburgh	4.85	5.751	7.15	5.00	6.00	5.05	4.90	4.90	5.65	9.35	9.60	10.80	11.05-
Portland	6.508-	8.001	8.80- 9.20	6.858	****	6.308	6.358	6.358	8.2514	10.506	10.106	****	****
Salt Lake City	7.05- 8.00	8.20	7.90-	7.10- 7.70	****	5.75- 6.85	6.65- 7.00	6.95- 7.25	7.40	****	****	****	
San Francisco	6.158	7.502	8.102	6.758	8.253	6.358	5.908	5.908	7.55	10.9015	10.8515	12.4015	12.6518
Seattle	6.204- 7.104	7.752- 8.652	7.65 9.152	6.554-		6.20- 6.354	6.15- 6.30 ⁴	6.054-	8.0014- 8.1514		10.3015- 11.3515		12.0015
St. Louis	5.21- 5.37	6.12- 6.27	7.47-	5.22- 5.97	8.68	5.47- 5.62	5.27- 5.42	5.27- 5.92	6.07- 6.22	9.72	9.97	****	11.42
St. Paul	5.44	6.19-	7.74	5.44	6.82	5.64-	5.49	5.49	6.29	****	****	****	

BASE QUANTITIES

Standard unless otherwise keyed on prices.

HOT-ROLLED:

Sheets, strip, plates, shapes and bars, 400 to 1999 lb.

COLD-ROLLED:

Sheets, 400 to 1999 lb; strip, extras on all quantities bars 1000 lb and over.

ALLOY BARS:

1000 to 1999 lb.

GALVANIZED SHEETS:

450 to 1499 lb.

EXCEPTIONS:

EXCEPTIONS:
(1) 400 to 1499 lb; (2) 450 to 1499 lb; (3) 300 to 4999 lb; (4) 300 to 9999 lb; (5) 2000 lb and over; (6) 1000 lb and over; (7) 400 to 14,999 lb; (8) 400 lb and over; (9) 500 to 1999 lb; (10) 500 to 999 lb; (11) 400 to 3999 lb; (12) 450 to 3749 lb; (13) 400 to 1999 lb; (14) 1500 lb and over; (15) 1000 to 4999 lb; (16) 4000 lb and over; (17) up to 1999 lb; (18) 1000 to 1499 lb.

PIG IRON PRICES

Dollars per gross ton. Delivered prices represent minimums. Delivered prices do not include 3 pct tax on freight nor the 6 pct increase on total freight charges in the Eastern Zone (5 pct Southern Zone, 4 pct Western Zone), effective Jan. 11, 1949.

	PRODUC	ING POIN	T PRICES	3			DELIVER	ED PRICE	B (BASE	GRADES)			
Producing Point	Basic	No. 2 Foundry	Maile- able	Besse- mer	Low Phos.	Consuming Point	Producing Point	Freight Rate	Basic	No. 2 Foundry	Maile- able	Besse- mer	Low Phos
Bethlehem Birmingham Burlaie Chicage Cleveland Duluth Erle Everett Granite City Ironton, Utah Lene Star, Texas Neville Island Geneva, Utah Sharpaville Steetton Struthers, Ohle	48.00 42.88 47.00 46.00 46.00 47.90 46.00 47.90 48.00 48.00 48.00 48.00 46.00 46.00 46.00	43.38 47.00 46.50 46.50 46.50 52.50 46.50 46.50 46.50 46.50 46.50 46.50 46.50	47.50 48.50 46.50 46.50 53.00 48.90 48.50 48.50 48.50	47.00 47.00 47.00 47.00 47.00 47.00 51.50	51.00	Boston	Everett. Steelton Bethlehem. Bethlehem. Bethlehem. Geneva-Ironton Cleveland-Tolede Bethlehem. Swedeland Steelton. Geneva-Ironton Geneva-Ironton Geneva-Ironton Granite City Lone Star, Texas.	\$0.50 Arb. 6.27 3,90 6.09 2.39 6.93 3.03 2.21 1.31 6.93 6.93 0.75 Arb.	54.27 51.90 48.97 50.39 52.93- 53.93 49.03 50.21 51.31 50.81 52.93- 53.93 52.93- 53.93 48.65 50.50	53.00 54.77 49.46 53.43- 54.43 49.53 51.81 51.31 53.43- 54.43 53.43- 54.43 54.15 51.00†	53.50 55.27 49.53 52.31 51.81	55.77 50.03 52.81 52.31	60.22 54.03 56.81
Troy, N. Y Youngstown	46.00	48.50	48.50		54.00	t Low Phos, S	outhern Grade						

Producing point prices are subject to switching charges; silicon differential (not to exceed 50¢ per ton for each 0.25 pct silicon content in excess of base grade which is 1.75 to 2.25 pct for foundry iron); phosphorus differentials, a reduction of 38¢ per ton for phosphorus content of 0.70 pct and over manganese differentials, a charge not to exceed 50¢ per ton for each 0.50 pct manganese content in excess

of 1.00 pct. \$2 per ton extra may be charged for 0.5 to 0.75 pct nickel content and \$1 per ton extra for each additional 0.25 pct nickel.

Silvery iron (blast furnace) silicon 6.00 to 6.50 pct. C/L per g.t., f.o.b. Jackson, Ohio —559.50; f.o.b. Buffalo, \$60.75. Add \$125 per ton for each additional 0.50 pct Si up to 12 pct. Add 50¢ per ton for each 0.50 pct

Mn over 1.00 pct. Add \$1.00 per ton for 0.75 pct or more P. Bessemer ferrosilicon prices are \$1.00 per ton above silvery iron prices of comparable analysis.

Charcoal pig iron base price for low phosphorus \$66.00 per gross ton, £.o.b. Lyles, Tenn. Delivered Chicago, \$73.78. High phosphorus charcoal pig iron is not being produced.

Ferromanganese	Ferrochrome	Other Ferroalloys
78-82% Mn, Maximum contract base	Contract prices, cents per pound, contained Cr, lump size, bulk, in carloads, delivered. (65-72% Cr. 2% max. SI)	Ferrotungsten, standard, lump or
F.o.b. Birmingham\$174	livered. (65-72% Cr. 2% max. Si)	4 x down, packed, per pound contained W, 5 ton lots, de-
rice, gross ton, lump size. F.o.b. Birmingham F.o.b. Niagara Falls, Alloy, W. Va., Welland, Ont. F.o.b. Johnstown, Pa. F.o.b. Sheridan, Pa. \$172 F.o.b. Sheridan, Pa. \$172	0.06% C 28.76 0.10% C 28.25 0.15% C 28.00	Ferrovanadium, 35-55%, contract basis, delivered, per pound, con-
F.o.b. Sheridan, Pa		tamed, v.
	1.00% C	Openhearth
\$2.00 for each 1% above 82% Mn; penalty, \$2.00 for each 1% below 78%. Briquets—Cents per pound of briquet, delivered, 66% contained Mn.	2.00% C 65-69% Cr. 4-9% C 20.50	High speed steel (Primos) 3.10
delivered, 66% contained Mn. Carload, bulk	0.50% C 27.50 1.00% C 27.25 2.00% C 27.25 2.00% Cr, 4-9% C 20.50 62-66% Cr, 4-6% C, 6-9% Si 21.35 Briquets — Contract price, cents per	Vanadium pentoxide, 88-92% V ₂ O ₈ contract basis, per pound contained V ₂ O ₈ \$1.20
Ton lots	pound of briquet, delivered, 60% chromium.	Ferrocolumbium, 50-60% contract basis, delivered, per pound con-
2000 1010 11 12.50	pound of briquet, delivered, 60% chromium. Carload, bulk 13.75 Ton lots 15.25 Less ton lots 16.15	basis, delivered, per pound con- tained Cb.
Spiegeleisen	ness ton lots	Ton lots
Contract prices gross ton, lump, f.o.b. 16-19% Mn 19-21% Mn	High-Nitrogen Ferrochrome	Ferromolybdenum, 55-75%, f.o.b. Langeloth, Pa., per pound con-
Palmerton, Pa. \$64.00 \$65.00	Low-carbon type: 67-72% Cr, 0.75%	tailled Mo
Pgh. or Chicago 65.00 66.00	Low-carbon type: 67-72% Cr, 0.75% N. Add 5¢ per lb to regular low carbon ferrochrome price schedule. Add 5¢ for	Calcium molybdate, 45-50%, f.o.b. Langeloth, Pa., per pound con-
Manganese Metal	each additional 0.25% N.	tained Mo 96¢
Contract basis, 2 in. x down, cents per pound of metal, delivered.	5 M E	Molybdenum oxide briquets, f.o.b. Langeloth, Pa., per pound con-
96% min. Mn, 0.2% max. C, 1% max.	S. M. Ferrochrome Contract price, cents per pound chro-	ferrotitanium, 40%, regular grade.
Carload, packed	mium contained, lump size, delivered.	Ferrotitanium, 40%, regular grade, 10% C max, f.o.b. Niagara Falls, N V traight allowed east of
	Contract price, cents per pound chromium contained, lump size, delivered. High carbon type: 60.65% Cr. 4-6% Sl, 4-6% Mn, 4-6% C. Carloads 21.60 Top lets 22.75	N. Y., freight allowed east of Mississippi and north of Balti-
Electrolytic Manganese		more, ton lots, per lb contained
F.o.b. Knoxville, Tenn., freight allowed east of Mississippi, cents per pound.	Less ton lots	Ferrotitanium, 25%, low carbon, f.o.b. Niagara Falls, N. Y., freight allowed east of Mississippi and north of Baltimore, ton lots, per
Carloads	4-6% Mn, 1.25% max. C. Carloads	allowed east of Mississippi and north of Baltimore, ton lots, per
Less ton lots 32	Ton lots	lb contained Ti
Low-Carbon Ferromanganese		Ferrotitanium, 15 to 19%, high car- bon, f.o.b. Niagara Falls, N. Y.
Contract price, cents per pound Mn con- tained, lump size, delivered.	Chromium Metal	freight allowed east of Mississippi
	Contract prices, cents per lb chromium contained packed, delivered, ton lots. 97% min. Cr, 1% max. Fe.	and north of Baltimore, carloads, per net ton\$160.00
0.07% max. C, 0.06% P, 90% Mn	min. Cr, 1% max. Fe.	Ferrophosphorus, electrolytic, 23- 26%, carlots, f.o.b. Siglo, Mt.
0.15% max. C 24.25 26.10 27.30	0.20% max. C 1.09 0.50% max. C 1.05 9.00% min. C 1.04	Pleasant, Tenn., \$3 unitage, per
0.30% max. C 23.75 25.60 26.80 0.50% max. C 23.25 25.10 26.30	3.00% mm. C	10 tons to less carload 75.00
0.75% max. C, 7.00% max. Ci 20.25 22.10 23.30	Calcium—Silicon	Zirconium, 35-40%, contract basis, f.o.b. plant, freight allowed, per
Silicomanganese	Contract price per lb of alloy, lump,	pound of alloy. Ton lots
	delivered. 30-33% Ca, 60.65% SI, 3.00% max. Fe.	Zirconium, 12-15%, contract basis, lump, delivered, per pound of
Contract basis, lump size, cents per pound of metal, delivered, 65-68% Mn, 18-20% SI, 1.5% max. C. For 2% max. C, deduct 0.2¢.	Carloads	alloy.
Carload bulk	Less ton lots 22.50	Carload, bulk 6.60¢ Alsifer, 20% Al. 40% Si, 40% Fe,
Bridget, contract basis, carlots, bulk	C 1	Alsifer, 20% Al, 40% Si, 40% Fe, contract basis, f.o.b. Suspension Bridge, N. Y.
Ton lots 11.90	Colcium—Manganese—Silicon Contract prices, cents per lb of alloy,	Carload 8.90¢ Ton lots 9.80¢
Less ton lots 12.80	lump, delivered. 16-20% Ca, 14-18% Mn, 53-59% SL	Simanal, 20% Si, 20% Mn, 20% Al, contract basis, f.o.b. Philo,
Silvery Iron (electric furnace)	Carloads 19.25	Onio, freight allowed, per pound
Si 14.01 to 14.50 pct, f.o.b. Keokuk, Iowa, openhearth \$84.00, foundry, \$85.00; \$84.75 f.o.b. Niagara Falls; Electric furnace silvery iron is not being produced at Iackson Add. \$1.00	Ton lots	Carload, bulk
\$84.75 f.o.b. Niagara Falls; Electric furnace silvery iron is not being produced at		Less ton lots 11.75¢
	CMSZ	D A
ditional 0.50% Si up to and including 18%. Add \$1.00 for each 0.50 pct. Mn over 1 pct.	Contract price, cents per pound of alloy, delivered.	Boron Agents Contract prices per pound of alloy,
Silicon Metal	Alloy 4: 45-49% Cr, 4-6% Mn, 18-21% Si, 1.25-1.75% Zr, 3.00-4.5% C.	delivered.
Contract price, cents per pound con-	Alloy 5: 50-56% Cr, 4-6% Mn, 18-21% Si, 1.25-1.75% Zr, 3.00-4.5% C. Alloy 5: 50-56% Cr, 4-6% Mn, 13.50-16.00% Si, 0.75 to 1.25%Zr, 3.50-5.00% C. Ton lots 19.75	Ferroboron, 17.50% min. B, 1.50% max. Si, 0.50% max. Al, 0.50% max. C, 1 in.
tained Si, lump size, delivered, for ton lots packed.	Ton lots	* D. Ton lot \$1.20
96% Si, 2% Fe 20.70 97% Si, 1% Fe 21.10		Manganese—Boron 75.00% Mn, 15-20% B. 5% max. Fe, 1.50% max. Si, 3.00%
ant.	V Foundry Alloy	B, 5% max. Fe, 1.50% max. Si, 3.00% max. C, 2 in. x D, delivered. Ton lots
Silicon Briquets Contract price, cents per pound of	Cents per pound of alloy, f.o.b. Suspen-	Less ton lots 1.79
Contract price, cents per pound of briquet, bulk, delivered, 40% Si, 1 lb Si briquets.	sion Bridge, N. Y., freight allowed, max. St. Louis. V-5: 38-42% Cr, 17-19% Si.	Nickel—Boron 15-18% B, 1.00% max. Al, 1.50% max. Si, 0.50% max. C, 3.00% max. 'Fe, balance Ni, delivered.
Carload, bulk 6.30 Ton lots 7.90	S-11% Mn. Ton lots	Less ton lots \$1.86
Less ton lots 8.80	Less ton lots 17.00¢	Silcaz, contract basis, delivered. Ton lots
Electric Ferrosilicon	Graphidox No. 4	Grainal, f.o.b. Bridgeville, Pa.,
Contract price, cents per pound contained Si, lump size, bulk, in carloads,		freight allowed, 100 lb and over.
delivered. 25% Si	Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis. Si 48 to 52%, Ti 9 to 11%,	No. 6
50% Si	Ca 5 to 7%. Ton lots and carload packed 18.00¢	Bortam, f.o.b. Niagara Falls Ton lots, per pound 45¢
75% Si 13.50 85% Si 14.65 90-95% Si 16.50	Less ton lots 19.50¢	Less ton lots, per pound 50¢
	5) 47	Bridge, N. Y.: freight allowed.
Calcium Metal Eastern zone contract prices, cents per	Contract price, cents per pound of alloy.	Carbortam, f.o.b. Suspension Bridge, N. Y.; freight allowed, Ti 15-18%, B 1.00-1.50%, Si 2.5- 3.0%, Al 1.0-2.0%.
pound of metal, delivered.	Contract price, cents per pound of alloy, delivered. 60-65% Si, 5-7% Mn, 5-7% Zr, 20% Fe, ½ in. x 12 mesh.	Borosil, f.o.b. Philo. Ohio. freight
Ton lots \$2.05 \$2.95 \$3.75	Ton lots	allowed, B 3-4%, Si 40-45%, per lb contained B \$6.25
Less ton lots 2.40 3.30 4.55	14005 toll lote 16.00	****

Production of Sponge Iron Discussed in New Government Bulletin

Washington

• • • Foreign and domestic methods for producing sponge iron by the gaseous reduction of iron ore are described in a Bureau of Mines report of investigations covering tested processes or those proposed within the last 100 years.

Pointing out that no commercial process has been developed in this country, the report shows that in United States patent applications from 1876 to 1947, shaft furnaces have been used most frequently in making sponge iron. In addition to shaft furnaces, Bureau research has included experiments with a rotary kiln, a multiple-hearth furnace, and a retort furnace.

Of various reducing gases proposed for making sponge iron, carbon monoxide is the most common one, with hydrogen next in importance. Other gases discussed in the report include coal gas, Bosh gas, fuel gas, illuminating gas, methane, natural gas, oil gas, producer gas, and water gas.

Material for the Bureau's report on sponge iron research was compiled by Edward P. Barrett, thief of the Minneapolis Branch Office of the Bureau's Metallurgical Div. Included in the report is an extensive bibliography on the production of sponge iron by reduction with hydrogen, reduction with carbon monoxide, and reduction with other gases.

A free copy of the publication, Report of Investigations 4402, "Gaseous Reduction Methods for the Production of Sponge Iron," may be obtained by writing to the Bureau of Mines, Publications Distribution Section, 4800 Forbes St., Pittsburgh 13, Pa.

Reports Biggest Year

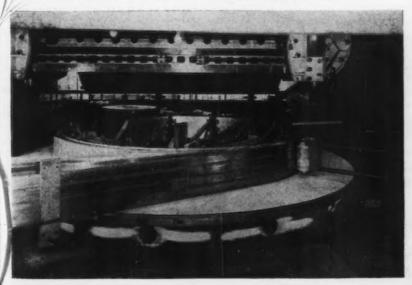
Youngstown

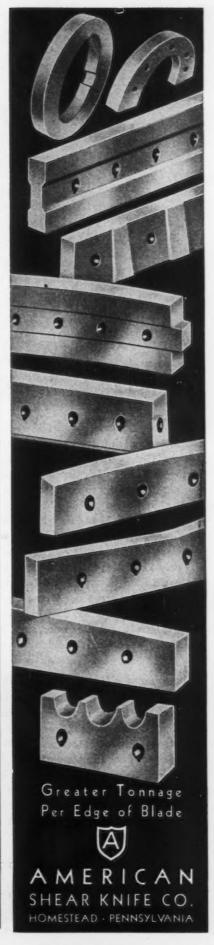
• • • The General Fireproofing Co. of Youngstown, had the biggest year in its history, according to the annual report for 1948 which was recently submitted to stockholders at the annual meeting.

The 1948 annual report showed a net profit of \$3,798,310.61, an all-time high for the company. Net sales totalled \$33,395,358.68, an increase of \$5,572,540.61 over 1947 and more than double the figure reached during 1946.

Shipments for the year represented an increase of 20 pct over the preceding year.

ROUND AND ROUND SHE GOES: Sixteen heavy bands of pure copper, each 5 in. wide, are being wound to form the coils of the Synchrocyclotron for the Carnegie Institute of Technology. The copper was fabricated at the Elizabeth, N. J., mills of the Phelps Dodge Copper Products Co.







WRECKING COMPANY CUTS LABOR COSTS FROM \$2.04 to 14c PER TON WITH OSGOOD MAGNET CRANE

LABOR COST of loading pre-cut, low phos scrap at the Galion Auto Wrecking Company dropped from \$2.04 to 14c per ton when an Oseoop Magnet Crane went to work. Formerly, 4 men loading by hand could get out 120 tons in a 54-hour week at a cost of \$244.20. With the Osgood Magnet Crane, it is now possible for 2 men to load this same volume in only 7 1/2 hours at a labor cost of only \$16.95. In continuous operation, the Oseoop could load as many as 18 trucks (144 tons) of this type of scrap per 9-hour day at a saving of \$1.90 per ton or \$273.60 in labor costs. No wonder Max Levant, the owner, says "Wish I'd had my Oscood sooner. We couldn't do without it now."

THE ABOVE EXAMPLE is no exception. Scrap yards, plants, foundries, and warehouses across the nation are having equally profitable experiences with Oseood Magnet Cranes. These rugged, trouble-free cranes outperform anything you've ever seen for handling plates, billets, and odd-shaped pieces, large or small. Carriers are loaded, and yards rearranged, in record time. Safety of workers is greatly increased. Enclosed cab permits work in all weather. Crane soon pays for Itself. Write for more information today.

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